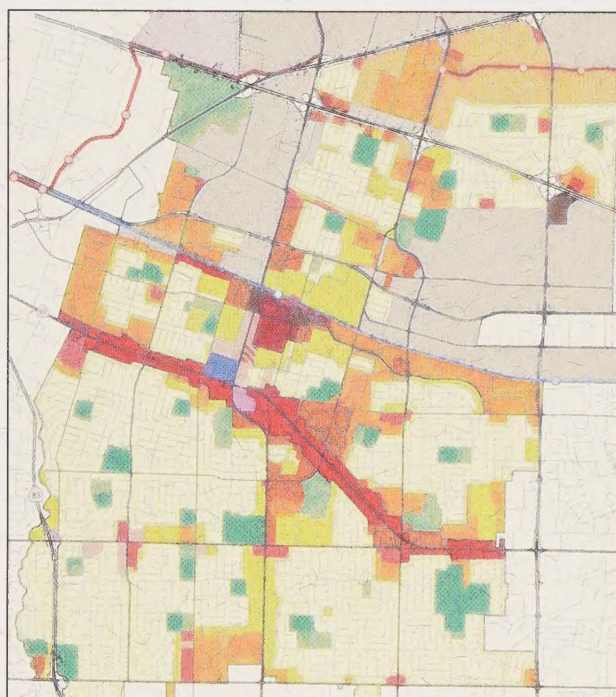


# Land Use and Transportation Element

CITY OF SUNNYVALE GENERAL PLAN

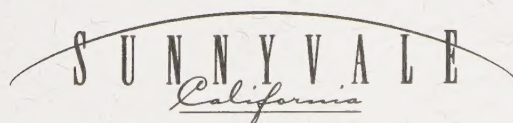


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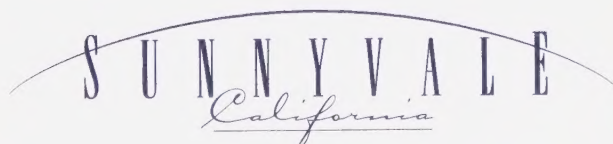


# Land Use and Transportation Element


## CITY OF SUNNYVALE GENERAL PLAN



The Land Use and Transportation Element  
complies with California Government Code Section 65302  
and was adopted by the Sunnyvale City Council  
by resolution number 181-97 on  
November 11, 1997



Community Development and Public Works Departments



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# TABLE OF CONTENTS

---

---

Land Use And Transportation Map	back pocket
---------------------------------	-------------

---

Executive Summary	v
-------------------	---

---

Chapter 1 - Introduction	1
--------------------------	---

---

What is the General Plan? .....	1
Interrelationships with other Elements and Sub-Elements .....	2
Land Use and Transportation .....	3
General Plan Land Use and Transportation Map.....	5
General Plan Implementation Tools .....	5
How the General Plan Process Has Worked.....	10
The General Plan: A Strategic Document for the Future.....	13
Vision.....	15

**Figures:**

1.1 Sunnyvale General Plan Elements and Sub-Elements .....	3
---	---

---

Chapter 2 - Community Conditions	17
----------------------------------	----

---

History .....	18
Community Setting .....	21
The People.....	27
The Economy .....	39
The Uses of Land.....	48
Transportation .....	60
Conclusions .....	88

**Figures:**

2.1 Regional Location Map .....	22
2.2 Neighborhood Planning Areas and Census Tracts Map .	26
2.3 Population Projections.....	28
2.4 Housing Changes by Neighborhood Planning Areas .....	29
2.5 Age Distribution .....	30
2.6 Ethnicity .....	31
2.7 Mean Income Comparison .....	33



2.8	Employed Residents and Total Jobs .....	35
2.9	Commute Patterns to and from Sunnyvale Map.....	37
2.10	Sunnyvale Employed Residents' Mode Share 1990 .....	38
2.11	Total Jobs in Sunnyvale .....	39
2.12	Total Jobs in Sunnyvale and Santa Clara County.....	40
2.13	Sunnyvale Employment Sectors .....	41
2.14	City Comparison of Job Sectors.....	43
2.15	Sunnyvale Land Uses (net land area).....	48
2.16	Residential Land Use and Acreage.....	50
2.17	Neighborhood Shopping Centers Map.....	53
2.18	Open Space in Sunnyvale.....	56
2.19	Roadway Classification Map.....	61
2.20	Peak Hour Traffic Flows Map.....	67
2.21	Level of Service (LOS) Ratings .....	68
2.22	1990 and 2010 Projected PM Peak Levels of Service .....	70
2.23	Sunnyvale Bicycle System Map .....	72
2.24	Santa Clara Valley Transportation Authority Bus Route Map .....	76
2.25	San Jose International Airport Facilities.....	80
2.26	Transportation Facilities Controlled or Affected by Outside Agencies .....	81
2.27	Congestion Management Program Roadway Network Map .....	85

---

Chapter 3 - Issues	91
--------------------	----

---

Land Use Issues.....	92
Transportation Issues .....	117

**Figures:**

3.1	Sunnyvale Acreage by Zones, PD vs. Non-PD.....	95
3.2	High and Very High Density Residential Land Uses .....	102
3.3	Comparison of FARs by City (1996).....	113
3.4	Characteristics of Development in Sunnyvale Industrial Zoning Districts (1996) .....	114
3.5	Industrial Development FAR Ranges by Acreage in Sunnyvale.....	115
3.6	Work Travel to and from Sunnyvale .....	122
3.7	Transportation Infrastructure Capacity Options and Community Goals .....	126
3.8	2010 Projected Deficient Signalized Intersections for Various LOS Policies .....	131

---

## Chapter 4 - Major Facts, Findings And Assumptions And Community Condition Indicators 139

---

Major Facts .....	139
Findings and Assumptions .....	142
Community Conditions Indicators .....	146

### **Figures:**

4.1 Community Character .....	146
4.2 Appropriate Housing .....	147
4.3 Strong Economy .....	147
4.4 Efficient Transportation .....	148

---

## Chapter 5 - Goals, Policies And Action Statements 149

---

Organization of the Goals, Policies and Action Statements .....	152
The City as Part of a Region .....	153
The City .....	158
The Neighborhoods .....	170

---

## Appendix A - Relationship Of General Plan Land Use Categories With Zoning Categories A-1

---

Residential .....	A-2
Commercial .....	A-4
Industrial .....	A-6

### **Figures:**

A.1 General Plan and Zoning Categories .....	A-1
--	-----

---

## Appendix B - Special Land Use Plans B-1

---

Downtown Specific Plan .....	B-1
The Futures Study .....	B-2
Precise Plan for El Camino Real .....	B-3
Southern Pacific Corridor Site Specific Plan .....	B-4
Lockheed Site Master Use Permit .....	B-5
101/Lawrence Site Specific Plan .....	B-6

### **Figures:**

B.1 Areas with Specialized Plans Map .....	B-7
--	-----



---

Appendix C - 1995 Pm Peak Intersection Levels Of Service	C-1
---	-----

---

**Figures:**

C.1 1995 PM Peak Intersection LOS .....	C-1
---	-----

---

Appendix D - Capital Improvements Projects	D-1
--	-----

---

**Figures:**

D.1 Ten Year Resource Allocation Plan for Transportation Capital Projects.....	D-1
D.2 Sunnyvale Capital Improvement Projects Funded By Others .....	D-2

---

Appendix E - Transportation Mitigations	E-1
---	-----

---

**Figures:**

E.1 General Plan Build-out Roadway Capacity Mitigations	E-1
E.2 General Plan Build-out Intersection Capacity Mitigations.....	E-2
E.3 Mitigation Cost Estimates .....	E-3
E.4 Transportation Capacity Mitigation for Sunnyvale Projects Map .....	E-4

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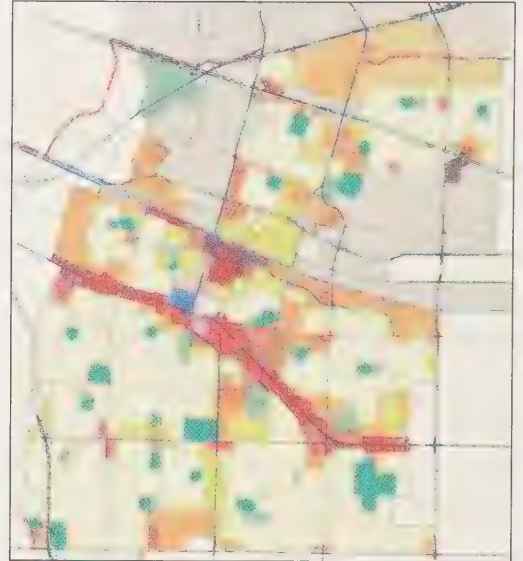
Appendix F - Resolution	F-1
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City Council Resolution No. 181-97.....	F-1
---	-----



# Executive Summary





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## EXECUTIVE SUMMARY

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**L**and use and transportation have an affect on virtually all other elements of the General Plan. Decisions on the use of land determine the character of the community, its economic vitality, and the future demand for services. Therefore, it is essential to have a firm base from which to identify and consider land use and transportation issues. While providing this information, the General Plan also articulates the community's vision for the future through a description of goals, policies, and actions. Since the first General Plan was adopted for Sunnyvale in 1957, the City has expressed its goals for the future with emphasis in four broad areas:

- ◆ Appropriate housing
- ◆ A strong economy
- ◆ Transportation efficiency
- ◆ Community character



The City's general desire for a strong economy, efficient transportation, appropriate housing and community character are comprehensive and interwoven concepts. They have a timeless quality and continue to provide a solid platform for the City's land use and transportation goals.



The Land Use and Transportation Element uses these concepts as the foundation for the City's future land use and transportation goals, policies, and implementation strategies. Since Sunnyvale is part of the region, these factors are further influenced by changes in population, jobs, and transportation that take place in both the region and the City. The Land Use and Transportation Element acknowledges a regional context for local decisions; how local decisions affect regional facilities and how regional growth affects the City's plans for the future.

---

## CHAPTER 1 - INTRODUCTION

---

The Land Use and Transportation Element is part of the Sunnyvale General Plan. The General Plan is a set of long-term goals and policies that guide local government decisions. Land use and transportation are significantly linked and provide the foundation for the physical development of the community. The General Plan provides guidance regarding the location, type, and intensity of land uses within the community. These factors drive the demand for transportation resources.

---

### The Vision for Sunnyvale

---

*Looking forward, Sunnyvale is a dynamic community with a strong positive image and identifiable community character consisting of varied and attractive residential and business/industrial neighborhoods. All neighborhoods are served by a viable, convenient transportation system. A strong economy supports the desired level of City services. The city has a variety of housing served by diverse and well-maintained parks, open space and recreational facilities. Within the region, Sunnyvale is an active participant in ensuring and sustaining its high quality of life.*

---

## **CHAPTER 2 - COMMUNITY CONDITIONS**

---

Sunnyvale's history is presented from a land use and transportation perspective, followed by a discussion of community conditions in 1995. The community conditions include: community setting, population, demographics, economics conditions, land uses and development patterns, and the transportation system.

---

## **CHAPTER 3 - ISSUES**

---

This chapter addresses a wide range of policy issues, including land use policy that affect transportation and transportation policy issues. The discussion points include:

- ◆ the jobs/housing ratio
- ◆ development standards in industrial zoning districts
- ◆ residential development
- ◆ high density residential zoning districts
- ◆ diverse land uses
- ◆ planned development combining districts
- ◆ the variety of transportation modes
- ◆ neighborhood traffic engineering
- ◆ the connection between land use and transportation (how to address roadway capacity)

The goals and policies emphasize several important points, including:

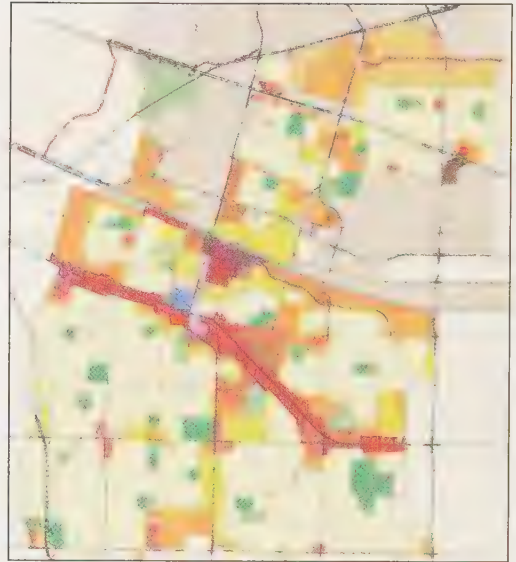
- ◆ the relationship between Sunnyvale and the region
- ◆ the key concept of neighborhood integrity
- ◆ the balance of various land uses in Sunnyvale
- ◆ the importance of an effective, safe, and convenient transportation system.
- ◆ the value of maintaining and creating an attractive, positive, image, and human-scale development
- ◆ the need for a variety of housing options
- ◆ the importance of a strong local economy to support services and a mix of jobs and commercial activities.

The Land Use and Transportation Element of the General Plan provide the foundation for the identification, development , and implementation of land use and transportation policies for the City of Sunnyvale.



# Chapter 1

## Introduction





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# CHAPTER 1 - INTRODUCTION

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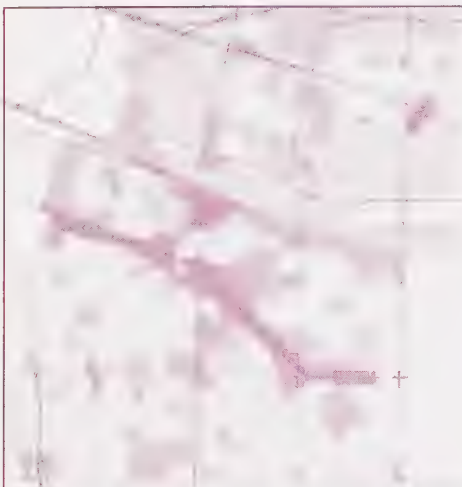
This Land Use and Transportation Element is part of the Sunnyvale General Plan. The purpose of this element is to guide the land use and transportation decisions that the City makes over the coming years, ensuring these decisions support achievement of the community's vision for Sunnyvale's future.

---

## WHAT IS THE GENERAL PLAN?

---

The General Plan is a set of long-term goals and policies that guide local government decisions. The General Plan has been used primarily to guide land development decisions. However, in 1980 the City of Sunnyvale, recognizing the importance of integrating all aspects of local government management into the General Plan, expanded the plan to include a more comprehensive approach to planning. City activities as diverse as seismic safety, the arts, and fiscal planning are now included in the Sunnyvale General Plan. Moreover, the City's budget, known as the Resource Allocation Plan, ties service levels directly to the policies and priorities established in the General Plan elements.



California state law requires that each local jurisdiction adopt and maintain a General Plan, including at least the following elements: land use, circulation (transportation), housing,

conservation, open space, noise, and safety. In keeping with state requirements, these elements are always addressed by the Sunnyvale General Plan through a series of documents called Elements or Sub-Elements.

Combining the former Land Use Sub-Element and the Transportation Element into one document represents a revision to the organization of the Sunnyvale General Plan. This unification reflects the recognition that land use and transportation are so interconnected that they should be discussed in one document. In one sense we are returning to an earlier model: Sunnyvale's first General Plan, adopted in 1957, focused on land use and transportation. This plan effectively updates and incorporates the General Plan amendments completed since the adoption of the Land Use Element in 1984 and the Transportation Element in 1981. This document contains largely similar policies to the earlier documents; any substantial policy changes are addressed in detail in Chapter 3 and included as part of the environmental review.

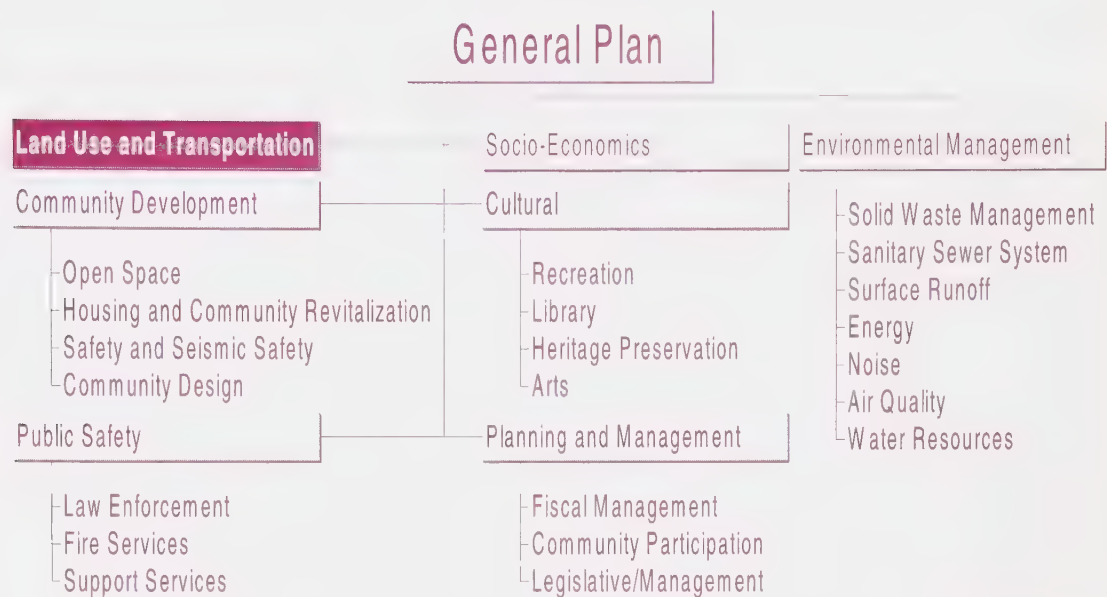
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## **INTERRELATIONSHIPS WITH OTHER ELEMENTS AND SUB-ELEMENTS**

---

Land use and transportation provide the foundation for the physical development of the community. All other General Plan elements and sub-elements are strongly influenced by the basic patterns and intensities of land uses in the community and by the transportation network that serves these uses. For example; preservation of open space, development of housing and parks, and community design standards (all sub-elements of the General Plan) are important aspects of land use planning. Access to all parts of the community is provided by the transportation network. Consequently, the transportation network affects the arrangement and character of the community.



**Figure 1.1: Sunnyvale General Plan Elements and Sub-Elements**

## LAND USE AND TRANSPORTATION

### Interrelationship

Land use and transportation are significantly linked. The General Plan provides guidance regarding the location, type, and intensity of land uses within the community. These factors drive the demand for transportation resources. Only within the last two decades, however, have land use and transportation planners recognized the exponential impact of this linkage.

For example, a new freeway may be built to alleviate traffic congestion at peak commute times on the existing roadway system. The new freeway may temporarily alleviate existing traffic congestion, but the access provided by the freeway may stimulate new residential and commercial development in formerly undeveloped areas. As new development expands, the freeway fills up with traffic created by the new development. The freeway becomes more congested and another freeway is proposed to alleviate the congestion—and the cycle repeats itself. While in earlier times this scenario would have been applauded as progress, this is not always the case in today's complex environment, where issues such as suburban sprawl and air and water pollution must also be considered.

Another land use and transportation link is the relationship between commuting costs (as measured in time and dollars) and land value. Since most people prefer a short work commute, a good job base makes a community a more desirable place to live. However, as the community builds out, land for residential development becomes more scarce, causing residential land values to increase. As a result, housing prices increase, and fewer people are able to afford to live in the community. Thus many people must find housing in other communities and commute to work. The increased number of commuters puts a strain on the local and regional roadway system and on the commuters themselves. Living closer to work becomes more desirable. Again people try to find housing in the community, causing further increases in land values—and the cycle repeats itself.

A simple response to these complex situations would be to approve no further development. But when there is a need for housing or access to jobs, denying potential new residents access to housing and jobs may begin to undermine the economic base of the community and the region. Do we have to choose between a healthy environment and our economic well-being? Or can we find creative solutions through better resource management, development of alternative land use and transportation strategies, and the application of new technologies? Such questions reveal the necessity for this element.

---

## **Purpose of This Element**

---

Transportation and land use planning are important components of any city and a necessary part of a city's long-term and short-term plans. The physical infrastructure, modes of movement, and existing and needed capacity of transportation shape a city just as land use choices affect the demand and development of transportation facilities. Thus, transportation and land use influence the future of a city and its citizens. Poor transportation and land use planning can paralyze and inhibit a city's vitality and diminish its charm. Sunnyvale's Land Use and Transportation Element outlines the City's goals and identifies the careful steps and actions needed, ensuring that the City's transportation system facilitates the movement of people and goods. It also ensures the wise use of land for present and future Sunnyvale residents and employees.

---

## GENERAL PLAN LAND USE AND TRANSPORTATION MAP

---

Sunnyvale's General Plan Land Use and Transportation Map has four major land use categories:

- ◆ Residential
- ◆ Commercial
- ◆ Industrial
- ◆ Public/Government Facilities

Each of these categories is divided into subcategories, based on density and land use type. The various land use categories are applied to geographic land areas within the community, to indicate which land uses the City believes will be the most appropriate at that location.

In making these decisions, the City must consider which land uses will best serve the public interest, while allowing property owners reasonable property use. Maintaining this balance has always been a primary function of land use planning.

---

## GENERAL PLAN IMPLEMENTATION TOOLS

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### Land Use

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#### *Zoning*

Land uses indicated on the General Plan Land Use Map are implemented by regulations found in the Zoning Chapter of the Municipal Code (Title 19). To indicate the relationship between these two documents, the term *General Plan* is used for the policy document that is basically conceptual, providing the broad framework for land uses within the City. The term *Zoning Code* refers to organized and codified legal regulations that are very specific and detailed. Zoning provides a legal mechanism for local government regulation of the land uses described in the General Plan Land Use Map.

In addition to providing specific regulations related to minimum lot size, building heights, setbacks, lot coverage, etc., for each zoning district, the Zoning Code also lists the uses that would be acceptable or could be considered in each district, as well as those that would be considered unacceptable. For some uses, further regulations are established. For example, floor area ratios (FARs) have been established in industrial zones and some residential zones, to respond to specific concerns about land use intensity in these districts. Zoning regulations designate the process to be used when a permit must be applied for in order to consider approval of a particular land use in a district. A table illustrating the relationship of the Sunnyvale General Plan land use categories with zoning categories is located in Appendix A.

---

### *Subdivision Map Act and Subdivision Code*

A subdivision is any division of land for the purpose of sale, lease, or finance. The Subdivision Map Act regulates subdivision throughout the state. The goals of the Subdivision Map Act are as follows:

- ◆ To encourage orderly community development by providing for the regulation and control of the design and improvement of a subdivision with proper consideration of its relationship to adjoining areas.
- ◆ To ensure that areas within the subdivision that are dedicated for public purposes will be properly improved by the subdivider so that they will not become an undue burden on the community.
- ◆ To protect the public and individual transferees from fraud and exploitation.

The Map Act allows cities some flexibility in the processing of subdivisions. Sunnyvale controls this process through the subdivision regulations in the Municipal Code (Title 18). These regulations ensure that minimum requirements are adopted for the protection of the public health, safety, and welfare; and that the subdivision includes adequate community improvements, municipal services, and other public facilities. Sunnyvale's subdivision provisions support the Subdivision Map Act and, in so doing, also support implementation of the City's General Plan.



---

### *Special Plans*

The City approved several major land use plans between 1984 and 1994. These plans include the Downtown Specific Plan, Futures Study, Precise Plan for El Camino Real, Southern Pacific Corridor Specific Plan, Lockheed Site Master Use Permit, and 101/Lawrence Site Specific Plan. All of these plans oversee the redevelopment, or more extensive development, of their respective planning areas. These plans act as powerful tools for implementing the goals and policies of the Land Use and Transportation Element through the regulation of density, height, and other design standards. Appendix B contains a brief description of these individual plans.

---

### *Capital Budget*

Within Sunnyvale, the General Plan serves as the foundation of all the City's planning and budgetary actions, and it forms the basis of the Planning and Management System. Each element of the General Plan articulates long-range policy direction, which is translated into action statements through legislative action and budget allocations. The budget implements the goals of the General Plan.

The budget structure is parallel to the General Plan structure but is further divided into programs, service delivery plans, and activities. Within the Department of Community Development, for example, the implementation of the General Plan is achieved through land use studies, an extensive land use data base, development review standards in the Sunnyvale Municipal Code, and the programs related to neighborhood preservation, housing, and economic development. Since the orientation of the budget is the allocation of resources to meet program outcomes, the budget is called the Resource Allocation Plan (RAP).

---

## CEQA

CEQA is the acronym for the California Environmental Quality Act. It encourages the protection of all aspects of the physical environment. The CEQA review process analyzes proposed developments for their potential impacts on the physical environment. In situations where there are no feasible alternatives, CEQA requires identification of mitigation measures to reduce, eliminate, or compensate for negative impacts. For example, some traffic mitigation measures may require capital improvements, while other measures may mandate bicycle facilities or trip reduction programs. The most common traffic mitigation measures require improvements to roadway and intersection capacity. There is further discussion of environmental mitigation at the end of Chapter 2.

---

## Design Guidelines

Sunnyvale has City-Wide and Industrial Design Guidelines. The City adopted these documents to improve the overall image and aesthetic quality of Sunnyvale. Used in conjunction with the Zoning Code, the City-Wide and Industrial Design Guidelines put proposed projects through a systematic design review. Drawn from the goals and policies of the General Plan, and most specifically from the Community Design Sub-Element, the City-Wide and Industrial Design Guidelines serve as effective tools to direct site and building design issues.

---

## Transportation

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### *Regional Transportation Plans*

The Santa Clara Valley Transportation Authority (VTA) is the designated Congestion Management Agency (CMA) in Santa Clara County. The VTA produces two planning documents that affect the implementation of Sunnyvale's General Plan. The Congestion Management Program (CMP) is a biennial document that sets performance standards for regional roadway, transit, and other transportation modes. The CMP also contains requirements for promoting alternative transportation uses consistent with air pollution control measures. In addition to the CMP, the SCTVA has a long-term planning document, which is updated about every

three to four years; the T2010 Plan is the SCTVA's most recent version of this planning document. The CMP and T2010 Plans serve as tools for maintaining service levels and initiating capital improvements for major roadways and transit, supporting the City's short- and long-term General Plan goals.

---

### *Countywide Deficiency Plan*

Local agencies are not able to affect large-scale improvements on freeways, expressways, and state roadways that are not owned or controlled by them. This situation led to State legislation that Congestion Management Agencies prepare Countywide Deficiency Plans (CDPs) for such regionally controlled facilities. Part of the 1990 legislation defines deficiency planning and includes the identification of ways to address local impacts on regional transportation systems. Deficiency planning will allow development to continue to occur while addressing, on a larger scale, region-wide impacts. Since the early 1990s, the VTA, acting as the Congestion Management Agency, has been working on the development of a CDP for Santa Clara County. Major components of the CDP are the identification of needed capital improvements and how these improvements would be funded over time.

---

### *Capital Improvement and Operating Budget*

The ability of the City to provide roadway capacity or other transportation facilities to support planned land use is a primary policy issue. The staging and funding of needed transportation capital improvements is necessary to facilitate orderly and comprehensive development and, in turn, to implement the goals and policies of the General Plan. The operating budget also establishes performance standards for the operation and maintenance of City roadways, bikeways, and sidewalks.

The Department of Public Works has several operating programs that are directly or indirectly related to operation and maintenance of the transportation system, including Traffic Engineering, Street Maintenance, Street Landscaping, and Development Review. An infrastructure replacement program has also been initiated to monitor and anticipate replacement needs for major components of the transportation system.



---

### *Conditional Approval for Development*

The City's development requirements for some developments are approved subject to "conditions of approval." Such conditions apply to projects whether or not they require environmental review per CEQA. Typical conditions of approval for transportation enhancements include requiring improved pedestrian access, as well as traffic flow enhancements.

---

### *Bicycle Plan*

The City adopted its most recent Bicycle Plan in 1993. This plan is consistent with and implements action statements in the General Plan. The Bicycle Plan provides guidance for developing bicycle facilities in Sunnyvale. As a planning tool, the Bicycle Plan will continue to support the General Plan objectives for bicycle planning in Sunnyvale.

---

## **HOW THE GENERAL PLAN PROCESS HAS WORKED**

---

Sunnyvale's first General Plan was adopted in 1957, revised in 1963, and revised again in 1972. In the early 1980s, the City began its current practice of printing separate elements and sub-elements to the General Plan. The earlier General Plan documents focused on land use and circulation planning, the planning basics at that time. They were short, simple, and to the point.

These earlier documents tell us how past community residents and leaders envisioned their community. Did they get what they wanted? Do present day residents want essentially the same thing or, given the constraints of current conditions, is a different Sunnyvale preferred by the year 2010? Answers to these questions help to define a vision of the future.

In reviewing these older plans, some significant continuities can be identified. One ongoing assumption was that Sunnyvale would continue to grow in population. The 1957 plan estimated that Sunnyvale's 1980 population would be 120,000, while the 1972 plan suggested that housing for 152,400 people would be needed by 1990. The actual population in 1980 was almost 108,000, and

the actual population in 1990 was about 117,000. All of these earlier plans visualized a City with a strong employment base. All had similar ideas about where and how the community should be commercially developed.

These past plans differ primarily in their perspectives on the kinds of housing that should be provided. For example, the 1957 plan suggested that the City should "have a large proportion of single family homes" and should "curb multifamily development." By 1963, more multifamily development was being encouraged, to accommodate the demand for housing created by a strong job market. One reason for this difference, when both plans used similar population estimates, is that in 1957 the General Plan estimated a future land area of approximately 30 square miles, including some of present day Cupertino and Santa Clara. Sunnyvale's land area has never reached that size. Later plans were based on estimated land areas of 24 to 25 square miles. The estimates were also based on the much larger average household sizes of the mid-1950s. These smaller land area estimates could not provide the projected housing needs without increasing the number of multifamily units.

The 1957 General Plan contained a very brief discussion of circulation, which focused on the streets and highway system in the City. At that time no local bus service was available, although the 1957 plan contained the comment that "As the City grows, some type of local bus service should be provided." The 1963 plan was even more brief in its description of circulation, noting the regional plans for the rapid transit system that would become BART, but not indicating a need for a local transit system. These plans reflected the bias at that time toward the use of the private automobile as the primary means of transportation. Air pollution, long commutes, and traffic congestion as a way of life had not yet become realities. Bicycles were used by children for recreation, and consequently were not provided for as part of the roadway system. It was assumed that providing for the automobile was the primary function of local transportation planning. This assumption resulted in the development of a street and highway system that now efficiently moves many automobiles around and through the City, but reinforces reliance on the automobile and makes retrofitting the system for alternative means of transportation more difficult.

These past planning efforts were generally successful, in that the vision they described for Sunnyvale has, in many ways, become a reality. Sunnyvale today is a balanced community with a mix of residential, commercial, and industrial development, and a strong employment base. There has always been emphasis on strong neighborhood identity. Sunnyvale values cohesive neighborhoods throughout the City. Several of the planned neighborhoods have been built. El Camino Real has been generally successful as a commercial strip, several neighborhood shopping centers have been developed, and Sunnyvale's downtown is still considered the City's commercial core. All three of the earlier general plans emphasized the aesthetic appearance of the City, resulting in the development of a strong public and private landscaping program.

However, when reviewing the earlier plans, it can be seen that not all problems were easily resolved. For example, there has been an ongoing "push-pull" between keeping Sunnyvale's suburban feel in its residential development while still providing enough housing for our strong job base. The question of how to achieve the proper balance between these two conflicting desires is still a challenge.

In today's environment, planning efforts can no longer be based solely on the needs and priorities of the local jurisdiction. It is now recognized that local land use and transportation decisions often have regional impacts. This recognition has resulted in an effort to develop cooperative relationships among local jurisdictions, in order to solve regional problems and promote a healthy physical and economic environment within the region. The development of cooperative regional relationships has been especially important to transportation planning activities. Since local jurisdictions tend to compete with each other for economic development as well as for state and federal funds for local projects, the successful development of regional strategies is another major challenge for the future.



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## THE GENERAL PLAN: A STRATEGIC DOCUMENT FOR THE FUTURE

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The General Plan is both a long-range (10-20 years) and a strategic (5-10 years, typically) planning document that optimizes the use of limited resources by selecting from various possible alternatives or actions.

The planning process starts with the formation of goals. Policy makers prioritize the goals. Next, the process turns to the development of alternative implementation plans. Policy makers compare and select from these implementation approaches. Through the creation, analysis, and choice of alternatives, this strategic planning process attempts to optimize resources for the realization of the City's goals.

Since the first General Plan was adopted for Sunnyvale in 1957, the City has expressed its goals for the future with emphasis in four areas:

- ◆ Community Character
- ◆ Appropriate Housing
- ◆ Efficient Transportation
- ◆ Strong Economy

Although these concepts are quite broad and do not articulate a detailed vision for the future, they are helpful in testing the relative importance of various policies and alternatives. Consequently, they have worked well in a strategic planning environment.

These goals also have other important characteristics. In many instances they produce conflicting as well as complementary interests. An example is the balance between strong job growth and maintaining acceptable levels of traffic flow. As an economy grows and jobs are added, the demand for transportation services also increases. Inadequate transportation facilities can be a disincentive for economic expansion in a particular region. On the other hand, as industries develop, a combination of a growing tax base and roadway mitigation measures may result in the ability to increase roadway capacity. Thus, the concepts of a strong economy and efficient transportation can support or hinder each other in different situations.

As a package, the City's general desire for a strong economy, efficient transportation, appropriate housing, and community character are comprehensive and interwoven concepts. They have a timeless quality and can continue to provide a solid platform for the City's land use and transportation goals. The Land Use and Transportation Element uses these concepts as the foundation for the City's future land use and transportation goals, policies, and implementation strategies.

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## VISION

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A “vision” for Sunnyvale helps the community to understand and reach consensus on its desired goal for the given planning period. In essence, it is the distillation of all the goals and policies it has expressed.

*Looking forward, Sunnyvale is a dynamic community with a strong positive image and identifiable community character consisting of varied and attractive residential and business/industrial neighborhoods. All neighborhoods are served by a viable, convenient transportation system. A strong economy supports the desired level of City services. The City has a variety of housing served by diverse and well-maintained parks, open space and recreational facilities. Within the region, Sunnyvale is an active participant in ensuring and sustaining its high quality of life.*





# Chapter 2

## Community Conditions





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## CHAPTER 2 - COMMUNITY CONDITIONS

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**T**his chapter provides the history as well as an overview of the community conditions found in Sunnyvale in the base year 1995. Sunnyvale's history is presented from a land use and transportation perspective, followed by a focused discussion of the community conditions that existed in Sunnyvale in 1995. The community conditions to be reviewed include the following:

- ◆ Community setting
- ◆ Population demographics
- ◆ Economic conditions
- ◆ Land uses and development patterns
- ◆ Transportation system



Outside of the natural environment where it is located, a city's people, land development patterns, and transportation system are perhaps the most important components in giving a city its form and character. Therefore, the strengths, potentials, and limitations of our human, land use, and transportation resources are noted. The policy issues examined in Chapter 3 are based on the information provided here.



The Land Use and Transportation Element uses demographic data from several sources. Census data from 1970, 1980, and 1990 are used to show historic trends over time. The Association of Bay Area Governments (ABAG) provides reports on the nine county Bay Area region every two years. These reports focus on current and projected population and employment at city and county levels in the Bay Area. ABAG uses sophisticated modeling tools to develop their projections, which are reviewed by the region's city and county governments before publication. The most recent ABAG report is "Projections '96," which uses 1995 as a base year. ABAG data are used to suggest trends for the future. Another significant source of data used in this chapter is the City's Automated Land Information System (ALIS). ALIS is an extensive database used to track each parcel of land in Sunnyvale. In Chapter 2, unless otherwise indicated, 1995 is the base year for data from ALIS.

In some cases, Census data and ABAG data may have slightly different values. They also have different base years. Thus, in assembling the data used in this chapter, each analysis uses one data source throughout, to ensure consistency for that evaluation. Also, data sources are chosen based on which would provide the most current information. Consequently, the ABAG and ALIS data sources are used whenever possible, since they are more current than the last U.S. Census in 1990.

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## HISTORY

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### Land Use

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Perhaps the first land use plan prepared for Sunnyvale was the land development plan proposed by Sunnyvale pioneer W. E. Crossman in 1898. After he had purchased 200 acres from Martin Murphy's son Patrick, he began to promote his "City of Destiny" in publications distributed throughout California and the nation. Crossman envisioned a community that included both factories and small agricultural enterprises such as truck farms and orchards. He laid out a street pattern that featured a commercial area extending south from the railroad station and established one acre lots for residential development. After the 1906 earthquake, he was successful in drawing Sunnyvale's earliest industrial development, Hendy Iron Works, away from San Francisco. His vision of a community with an economic base featuring both agriculture and industry essentially set

the land use pattern of distinctive residential, industrial, and commercial neighborhoods for the community for the next 50 years.

Following World War II, Sunnyvale grew rapidly in the 1950s and 1960s, as did other communities in the Santa Clara Valley. This growth strongly imprinted Sunnyvale with the development styles popular at that time. During 1954, for example, approximately 4,400 residential units were constructed. Most of these were located in new residential planned neighborhoods, modeled on the suburban pattern that was popular at that time—low-rise ranch style homes in tracts that featured cul-de-sacs and curvilinear streets designed to avoid through traffic. Residential development patterns became more dense and urban in the 1970s and 1980s, however, as the demand for housing and the cost of land increased.

Sunnyvale has never been a "bedroom community" and has always provided a mix of commercial, agricultural, and industrial land uses, as well as residential land uses. Therefore the City has always had a strong employment base, which has continually stimulated the need for housing.

By 1995, almost 98% of the net land area in the City contained some form of development. Residential neighborhoods are marked by one-mile spaced arterial streets (resulting from the one-mile square unit of agricultural parcels), with few other streets that are continuous over long stretches. This pattern established logical, strong neighborhood units. Approximately two-thirds of the City's dwelling units are located south of the Southern Pacific railroad corridor, while manufacturing and office uses are concentrated north of that corridor. The City's major commercial neighborhood is the four mile spine along both sides of El Camino Real. In addition to this commercial strip, Sunnyvale has a downtown, composed of a regional shopping mall and adjacent commercial blocks, including the Murphy Station Heritage Landmark District and the Town and Country development. Neighborhood shopping centers are scattered throughout the City. With almost 98% of the land area at least partially developed, from 1995 onward most future development activity will involve redevelopment of existing underdeveloped sites and sites where business expansion or changes in use require new additions or extensive renovations. This factor will be an important consideration in developing land use and transportation policies for the future.

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## Transportation

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When Martin Murphy established the railroad route through his Bayview Ranch in 1864, it could be said that he became Sunnyvale's first transportation planner. As was typical of most early transportation activities, this action was not a part of a systematic plan. It was part of the process of exploration, discovery, and demand for access to new lands. The transportation development that both led and followed this demand for land access was basically opportunistic, and proceeded on an as needed rather than systematic basis.

The first formal City-wide transportation plan for Sunnyvale was part of the 1957 General Plan. At that time, transportation planning was called *circulation*, a term used to describe the movement of people and goods within a defined geographical area. In a sense, circulation implied a closed loop, a system where outside linkages were of secondary importance. But since 1957, regional, national, and international linkages have become increasingly important for businesses and residents. By 1981 the term *transportation plan* had supplanted the term *circulation* in the City's General Plan documents.

As Sunnyvale's population has grown and changed, and as the City's land area has been developed, the task of providing and maintaining a successful transportation system has become more complex. There are more people and goods moving in and out of the City, and there are expectations of ever increasing efficiency and convenience for all forms of transportation. Since 1957, the difficulty and complexity of transportation planning has increased exponentially. The historical separation of land uses contributing to Sunnyvale's "suburban" character and the emergence of Sunnyvale as a regional job center have resulted in a congested street and highway system.



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## COMMUNITY SETTING

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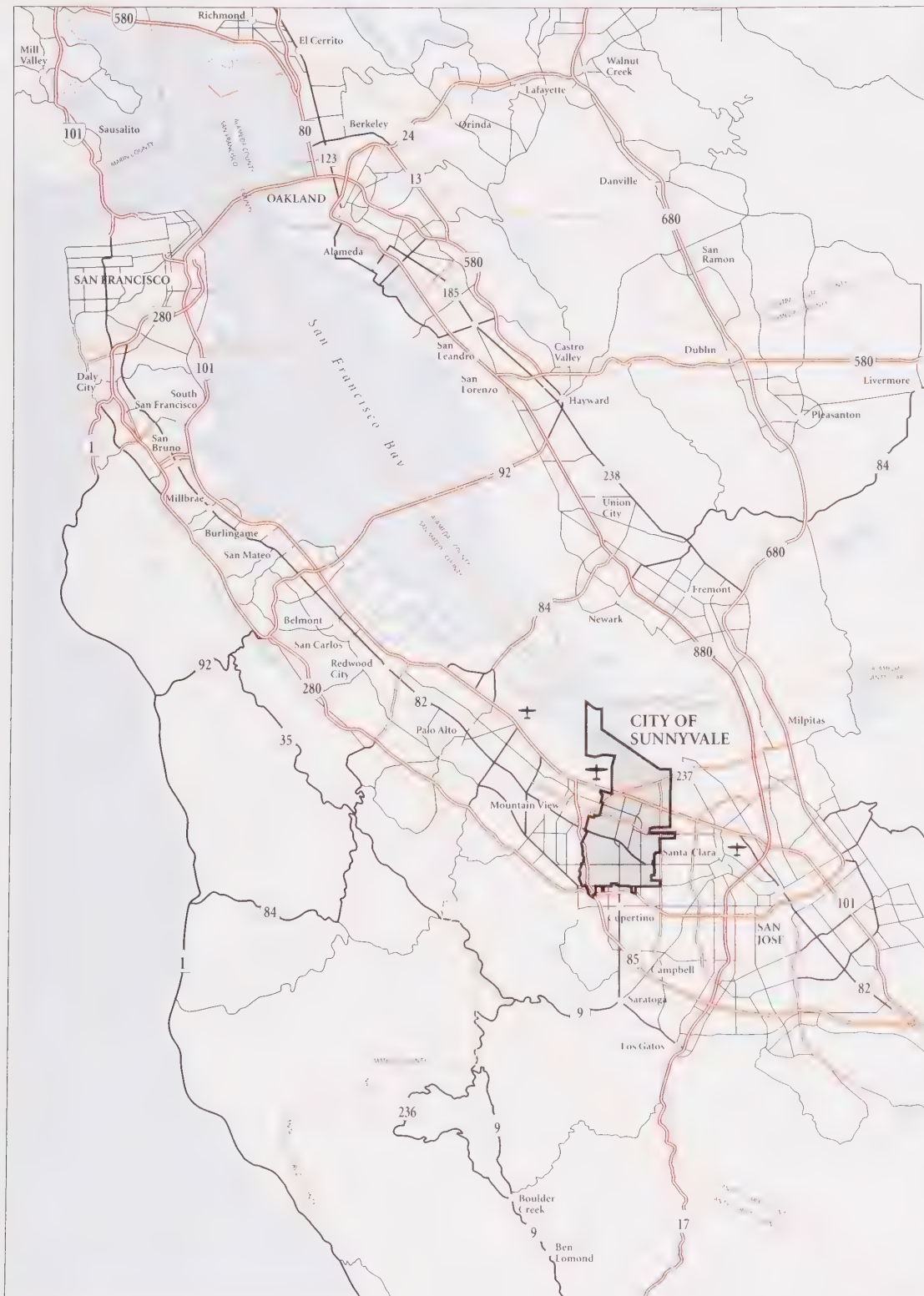
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### Geographic Location

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Located at the southwest end of San Francisco Bay, Sunnyvale is part of the solid band of urban development that surrounds the Bay. The City occupies 24 square miles and extends approximately 8.5 miles from the Bay to the north, to Junipero Serra Freeway (SR-280) to the south. Sunnyvale is bounded on the west by Mountain View and Los Altos, on the south by Cupertino, and on the east by Santa Clara and San Jose. A large portion of the northern part of the City lies within the “Golden Triangle,” the high tech industrial area defined geographically by three major transportation facilities: SR 101, SR 237, and SR 880. Figure 2.1 shows Sunnyvale's regional location as the “Heart of Silicon Valley.”

Figure 2.1: Regional Location Map



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## Climate and Topography

Sunnyvale has a Mediterranean climate — mild dry summers and cool wet winters. The average yearly mean temperature is 57.7 degrees Fahrenheit, with summer highs reaching up to 95 degrees and winter lows as cold as 22 degrees. The average humidity ranges between 53-66%. Sunnyvale has a growing season of 270 to 330 days.

Located in the Santa Clara Valley adjacent to the salt flats of the Bay, the City has a basically flat topography, rising slightly from sea level at the Bay to 300 feet at the southwest corner. Slopes range up to 15% in the high terrace lands to the south. While there are no definable hills in the City, the coastal mountains can be seen to the south and west, providing visual texture to the landscape.

The City is bordered on the east by Calabazas Creek and on the west by Stevens Creek. These streams, assisted by two flood control channels, play a major role in the control of surface runoff during rain storms. The City maintains an extensive storm drain system, and the Santa Clara Valley Water District maintains the creek and flood control channels in the City. The City is built atop the alluvial deposits (different mixtures of silt, clay and sand) that surround the margins of the bay. Sunnyvale's soil is largely composed of expansive clays. The City requires soils reports as part of the permitting process to determine the proper design of foundations and structural components. Seismically the City sits between two active earthquake fault systems, the San Andreas to the west and the Hayward/Calaveras to the east, with other potentially active faults nearby.

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## Regional, City, and Neighborhood Settings

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### *Regional Setting*

Strong, identifiable neighborhoods are Sunnyvale's building blocks. In turn, Sunnyvale, the second most populous city in Santa Clara County, is a building block in the South Bay Area region. The City is greatly impacted by its regional setting. Located at "The Heart of Silicon Valley," the growth, land use, and transportation patterns associated with the surrounding urban environment may affect the



City as much or more than changes within the City limits. As with any urbanized region, resources must be shared. The air basin, transportation facilities, job base, and housing stock serve residents throughout Santa Clara County, as well as other Bay Area counties.

Within the City limits, Sunnyvale has the ability to execute policies and strategies and achieve some degree of effectiveness. But the City is only one of many cities in the region. Sunnyvale is limited in its ability to influence travel demand that is generated outside of the City limits. To fill the void, and in response to legislative mandates, regional agencies are establishing procedures to foster consistent policy and prioritize funding to projects. City policy needs to consider and often conform to regional policies in order to achieve goals in areas of regional concern and to acquire outside funding, including major state and federal capital funding. The need for Sunnyvale to participate in such a regional approach and arena is expected to increase over the next 20 years.

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### *City Setting*

When examining policies, the City must weigh regional vs. City-wide benefits. In the 1980s, Sunnyvale made many land use decisions that limited jobs, provided additional housing, and championed the cause of more “regional thinking” regarding land use, transportation, the jobs/housing ratio, and the resultant air quality. There was a strong housing market in the 1980s, and housing was built quickly in the redesignated areas previously developed as industrial or commercial. A regional attitude was adopted, and on a City-wide basis, the appearance of the community was starting to change. The City examined planning practices that affected community appearance, and new policies were developed to improve the aesthetic quality of development. Over time, community character has increased in importance for the City.

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### *Neighborhood Setting*

Neighborhood planning areas are generally bounded by traffic arteries, are served with an elementary school or park within walking distance, and have neighborhood shopping facilities within a half-mile radius. Within the City there are nine neighborhood-level planning areas: Lakewood, West Murphy, East Murphy, Washington, Ponderosa, De Anza, Serra, Ortega, and Raynor. These areas are still used by the City as a means to describe and evaluate the City's overall physical organization. Figure 2.2 indicates Sunnyvale's neighborhood planning areas.

The neighborhood concept has always been an important component in Sunnyvale. The City was developed according to neighborhood planning areas. When examining its policies, the City must weigh neighborhood vs. City-wide benefits. For example, a variety of studies have indicated that it would take a major shift in City land use to bring about even a relatively small change in traffic on the regional system. However, this situation would not be true for developments in specific locations throughout the City. The City maintains a functional street classification system to reinforce neighborhoods by keeping traffic out of them. For example, a high intensity development could have significant impacts on a localized area, without making an observable impact on the City or regional system. Careful land use planning and well designed mitigation measures will become increasingly important to maintain appropriate neighborhood character.

**Figure 2.2: Neighborhood Planning Areas and Census Tracts Map**



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## THE PEOPLE

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Many significant demographic changes occurred in Sunnyvale between 1970 and 1995, including ongoing population increases, increased ethnic diversity, and changes in the age structure of the population. Recognizing these changes and the need for City services and programs to be responsive to a more diverse population is important in land use and transportation planning. Demographic projections also identify possible trends for the future. When data is available, Sunnyvale's demographic statistics are compared with those from Santa Clara County and the San Francisco Bay Region.

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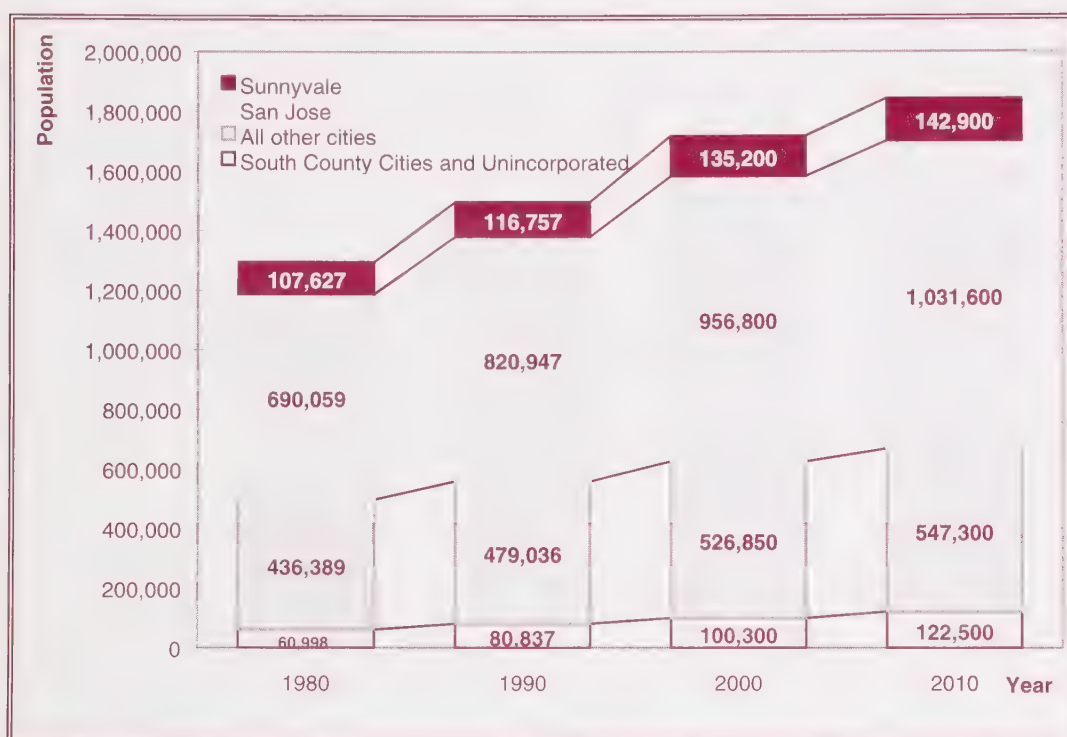
### Population

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Sunnyvale's population has grown steadily over the past 3 decades. Between 1970 and 1980 the population increased by 12%, increasing another 10% between 1980 and 1990. Sunnyvale's estimated population was 129,200 in 1997, nearly an 11% increase since 1990. ABAG projects that our population will continue to grow, but at a slower rate (6%) for the 2000-2010 decade.

Sunnyvale's projected population growth rate is similar to projected growth rates for Santa Clara County, which is expected to lead the San Francisco Bay Area region in population growth through 2010. (See Figure 2.3) The projected increase assumes that Sunnyvale can provide housing for this many new residents.



**Figure 2.3: Population Projections**

Source: ABAG Projections '96, Report to Council, 8810, February, 1996

All neighborhoods experienced declines in household size between 1970 and 1990. Between 1970 and 1980, some of the decline resulted in fewer people overall in 4 neighborhood planning areas (De Anza, East Murphy, Lakewood, and Serra), despite increases in the number of housing units. By 1990, the number of housing units and total population is fairly similar in 6 of the 9 neighborhood planning areas (De Anza, Lakewood, Ortega, Serra, Washington, and West Murphy) with about 6,000 units providing housing for about 14,000 people. Persons per household ranges from 2.13 to 2.60 in these neighborhood planning areas. Significant growth in any neighborhood planning area should be reviewed to determine service needs for those areas.

**Figure 2.4: Population and Housing Changes by Neighborhood Planning Area**

<b>Population/Housing Units</b>								
<b>Neighborhood</b>	<b>1970</b>	<b>1980</b>	<b>Change 1970-1980</b>		<b>1990</b>	<b>Change 1980-1990</b>		
			<b>%</b>	<b>Absolute</b>		<b>%</b>	<b>Absolute</b>	
<b>De Anza</b>								
Population	16,236	14,281	-12%	-1,955	13,528	-5%	-753	
Housing Units	4,751	5,238	10%	487	5,440	4%	202	
<b>East Murphy</b>								
Population	6,276	5,612	-11%	-664	6,287	12%	675	
Housing Units	2,193	2,302	5%	110	2,316	1%	14	
<b>Lakewood</b>								
Population	13,350	13,158	-1%	-192	13,527	3%	369	
Housing Units	3,580	5,588	56%	2,008	6,347	14%	759	
<b>Ortega</b>								
Population	12,197	12,951	6%	754	13,513	4%	562	
Housing Units	3,896	5,354	37%	1,458	6,025	13%	672	
<b>Ponderosa</b>								
Population	12,692	16,637	31%	3,944	19,695	18%	3,058	
Housing Units	5,091	7,194	41%	2,103	9,203	28%	2,008	
<b>Raynor</b>								
Population	6,637	4,059	-39%	-2,578	4,508	11%	449	
Housing Units	1,825	1,434	-21%	-391	1,698	18%	263	
<b>Serra</b>								
Population	13,962	13,500	-3%	-462	13,645	1%	144	
Housing Units	4,594	4,983	8%	389	5,240	5%	257	
<b>Washington</b>								
Population	12,784	12,784	0%	0	14,316	12%	1,532	
Housing Units	5,310	6,252	18%	942	6,585	5%	333	
<b>West Murphy</b>								
Population	10,131	10,452	3%	322	14,910	43%	4,458	
Housing Units	3,440	4,481	30%	1,042	6,693	49%	2,212	

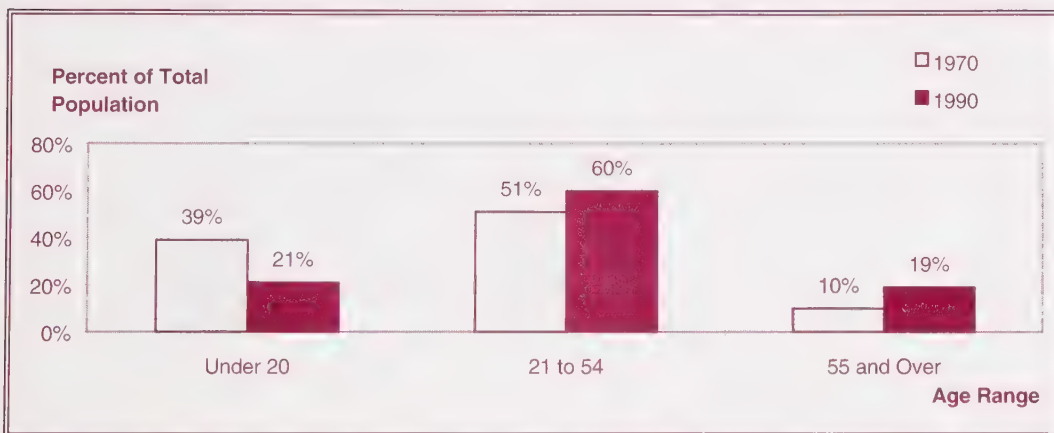
Source: 1970, 1980, and 1990 US Census

Note: Most, but not all census tract boundaries parallel Neighborhood Planning Area boundaries. In the cases where the boundaries are not the same, estimates are made regarding the proportion that a census tract is contained within a Neighborhood Planning Area.

## Age

The age distribution of Sunnyvale's population changed dramatically during the 1970-1990 time period, with an increase in the number of older residents and a decrease in the number of children. The over-55-year-old population more than doubled in real terms from 10% (10,007) of the total population in 1970 to 19% (22,571) in 1990. In 1970, 39% of the population was under 20 years old. By 1990, the age group under 20 years old had dropped to 21%. (See Figure 2.5)

**Figure 2.5: Age Distribution**



Source: 1970 and 1990 U.S. Census

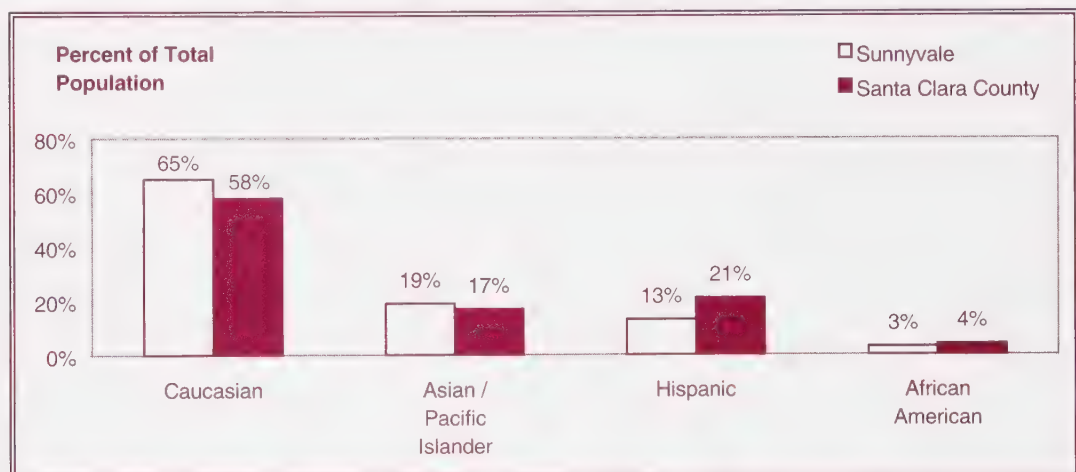
These changes in the age structure of Sunnyvale's population are similar to changes taking place in Santa Clara County and the nation. The largest population group is composed of the baby boomers (those born between 1946 and 1965). As the baby boomers age, the median age of the population will rise. Over the next two decades, the number of seniors will increase dramatically, while the number of young adults will remain relatively constant, and the number of children will increase only moderately.

In Santa Clara County, however, the net out-migration of people over 30, coupled with an increasing number of young families moving in, will tend to lessen the aging of the population. It is uncertain if this trend will occur in Sunnyvale. These changes in the age structure of the population may affect the types of housing and community services needed in the future.

## Ethnicity

Sunnyvale's ethnic makeup is becoming more diverse. Over the past 20 years the white non-Hispanic population has dropped from 95% of the total population in 1970 to 65% in 1990. The most significant population shift has been in the Asian and Pacific Islander population, which has grown from 4% in 1970 to 19% in 1990. Chinese and Filipino residents comprise the two largest segments of the Asian and Pacific Islander population. The African American population has increased from 1% in 1970 to 3% in 1990. The changes in the ethnicity of Sunnyvale's population reflect similar changes in Santa Clara County, although the County has a slightly higher percentage of Hispanic residents and a smaller percentage of Asian residents than Sunnyvale. (See Figure 2.6.) As ethnic diversity has increased, the number of U.S. born Sunnyvale residents has decreased from 92% in 1970 to 77% in 1990. In addition, the number of Sunnyvale residents whose first language is not English has increased from 19% in 1980 to 27% in 1990.

**Figure 2.6: Ethnicity**



Source: 1990 U.S. Census

As is true of the changes in the age structure, these changes in ethnicity may result in demand for different housing options, as well as different levels of community services and additional facilities such as schools, libraries, public safety, and leisure services.



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## Household Characteristics

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ABAG defines households as those persons who occupy a single dwelling unit. The number of households increased by almost 45% from 30,257 in 1970 to 43,744 in 1980. Between 1980 and 1990, this growth rate slowed and the number of Sunnyvale households increased by approximately 11%, to 48,638 households. This rate of increase is expected to decline to about 8% for the two 10-year periods between 1990-2010. The rate of increase in the number of households reflects the rate of increase in the population, although the rates do not match exactly since the number of persons who occupy a household can vary over the years. For example, in 1970 Sunnyvale had 3.14 persons per household. Persons per household declined to 2.44 by 1980. This decline was not reflected in the general population numbers, as the population increased during this time. Instead, more households were formed, while each household included fewer members than in the previous decade. Recent statistics indicate that there has been a reverse of this trend, with an increase in the number of persons per household from 2.39 in 1990 to 2.50 in 1995.

These fluctuations in household size will have some influence on the preferred types and sizes of dwelling units. When the fluctuations are related to the number of children present in the household, the amount of space that will be needed for school classrooms will be affected. However, it is estimated that there will be only a modest fluctuation in the number of persons per household between 1995 and 2015, with a high point of 2.55 persons per household in the year 2000.

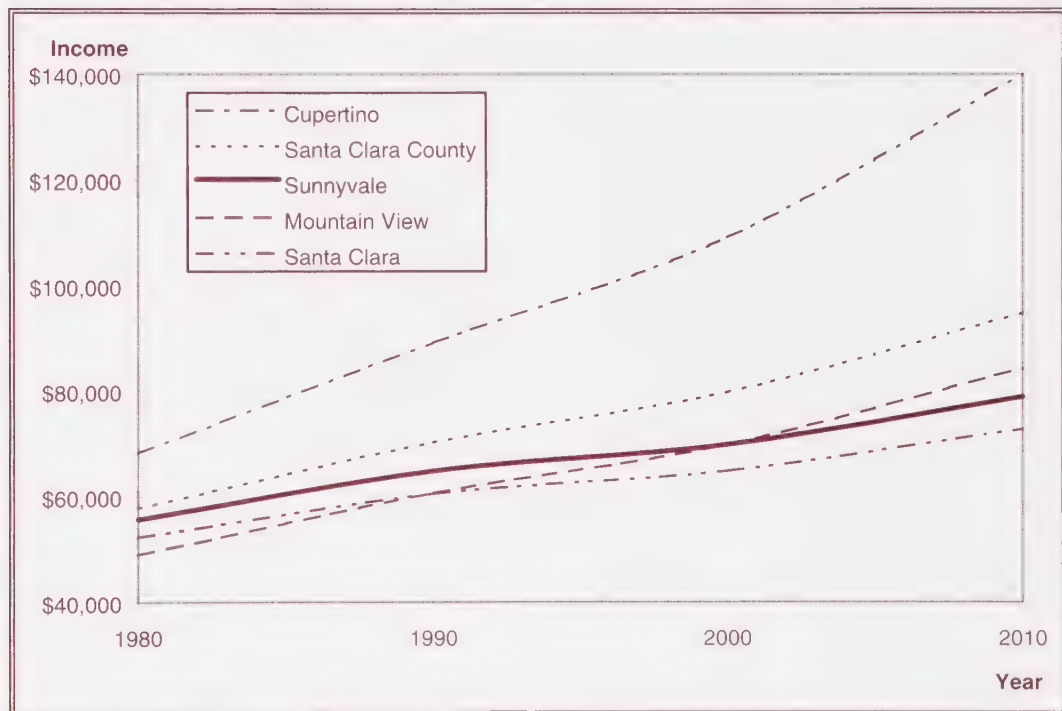
Numerous factors contribute to increases in household size, including young adults remaining at home to save money or complete their education, an increase in birth rates of newer families, or the presence of extended family members or unrelated persons. Household sizes tend to increase as people share housing to reduce costs during economically difficult periods. Other factors affecting household size are the availability of affordable housing, changes in population ethnicity, and lifestyle changes.

## Income

ABAG estimated Sunnyvale's mean household income to be \$66,300 in 1995. This amount is 11% less than the ABAG estimate for mean household income for all of Santa Clara County (\$73,800) in the same year.

ABAG projects Sunnyvale's mean household income to increase 19% to \$78,900 by 2010. During the same time period, ABAG projects the mean household income in Santa Clara County to increase by 28% to \$94,800. If these projections are realized, mean household income in Santa Clara County as a whole would be 20% higher than mean household income in Sunnyvale. Figure 2.7 depicts the income growth rate in Sunnyvale, the county, and neighboring cities.

**Figure 2.7: Mean Income Comparison**



Source: ABAG Projections '96, Report to Council, 8810, February, 1996

Sunnyvale's and Santa Clara's mean incomes are not projected to increase as quickly as Santa Clara County's mean income. Cupertino is expected to have a significantly higher income growth rate than the county, and Mountain View is projected to catch up to Sunnyvale's mean income in 2000 and surpass it by 2010.

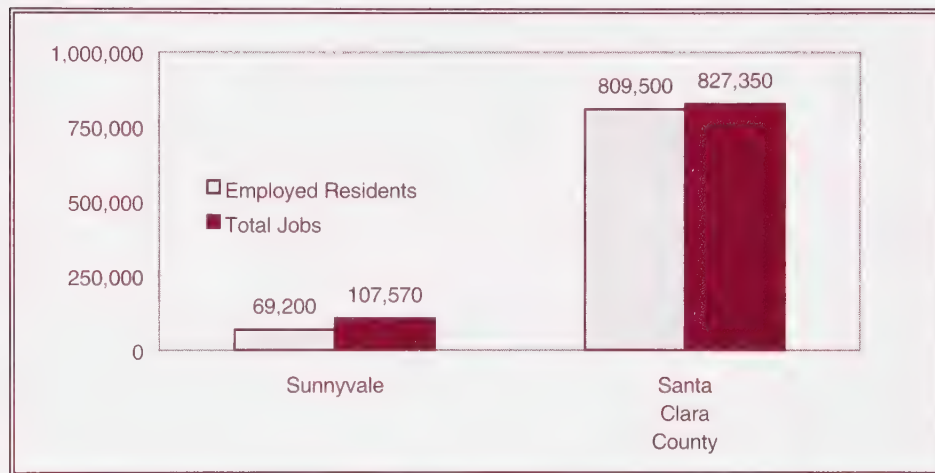
A variety of circumstances may be contributing to Sunnyvale's apparent lag in projected income growth. Some of these factors may affect the City in comparison to the entire county, while other factors indicate more specific relationships between Sunnyvale and its neighboring cities.

- ◆ Sunnyvale's residential areas are predominately built out, and thus new, large "executive style" housing is not being built in the City.
- ◆ Cupertino's schools are very highly rated and have contributed positively to housing values in that city.
- ◆ Although Sunnyvale's downtown has been slowly redeveloping, it is lackluster in comparison to downtown Mountain View.
- ◆ In comparison to most other Santa Clara County cities, Sunnyvale has a relatively greater share of mobile homes and multifamily housing, which tend to be the least expensive housing options.
- ◆ "The rich get richer" phenomenon increases the income gap over time.
- ◆ There is also a pattern of housing values and mean incomes that increase on a gradient away from the valley floor and toward the hills to the south and west.

## Employed Residents

An employed resident is someone who lives in the community and who has a job in the community or elsewhere. In 1995 Sunnyvale had 69,200 employed residents. Figure 2.8 compares the number of jobs available and the number of employed residents in Sunnyvale. Note that the number of employed residents is not equivalent to the labor force, since the labor force includes both the employed and those persons who are unemployed and seeking jobs. It is interesting to note that for Santa Clara County, there has been a closer match between the number of jobs and the number of employed residents (Figure 2.8), with only a slightly higher number of jobs than employed residents county-wide. These relationships are expected to remain relatively constant to the year 2010.

**Figure 2.8: Employed Residents and Total Jobs**



Source: ABAG Projections '96, Report to Council, 8810, February, 1996

The ratio of jobs to employed residents in Sunnyvale was approximately 1.55 in 1995. For the same year, Santa Clara County had a job-to-employed resident ratio of 1.02. Sunnyvale is job rich, providing 13% of jobs in the county, but only 8.5% of the employed residents. A direct result of these ratios is the extent of in-commuting to Sunnyvale.

This pattern, which is expected to continue, may be explained by the regional nature of jobs and residences. Many Santa Clara County residents may not work in the community where they live



but may work in one of the adjacent communities within the County. As Figure 2.9 indicates, most commuting, whether into or away from Sunnyvale, has origins or destinations within the County.

Since employed residents may work either inside the community or outside, it cannot be assumed that there is a job in Sunnyvale for every resident who wants one (a goal of the 1963 General Plan). In fact, the skills of some residents may be better matched by the job market elsewhere. Figure 2.9 indicates that there is a significant daily exodus of commuters from Sunnyvale, suggesting that many residents do work elsewhere. However, this figure also shows a much stronger daily influx of commuters, indicating that there is a strong job market here that attracts nonresidents to Sunnyvale.

In 1995, it was estimated that 32% of employed residents worked in Sunnyvale. The number of employed residents who actually work in Sunnyvale is important for several reasons, the most important being that employed residents do not engage in long commutes, thereby decreasing regional traffic congestion and air pollution. In addition, there are quality of life factors. Shorter commutes mean less traffic stress and more time for leisure activities.

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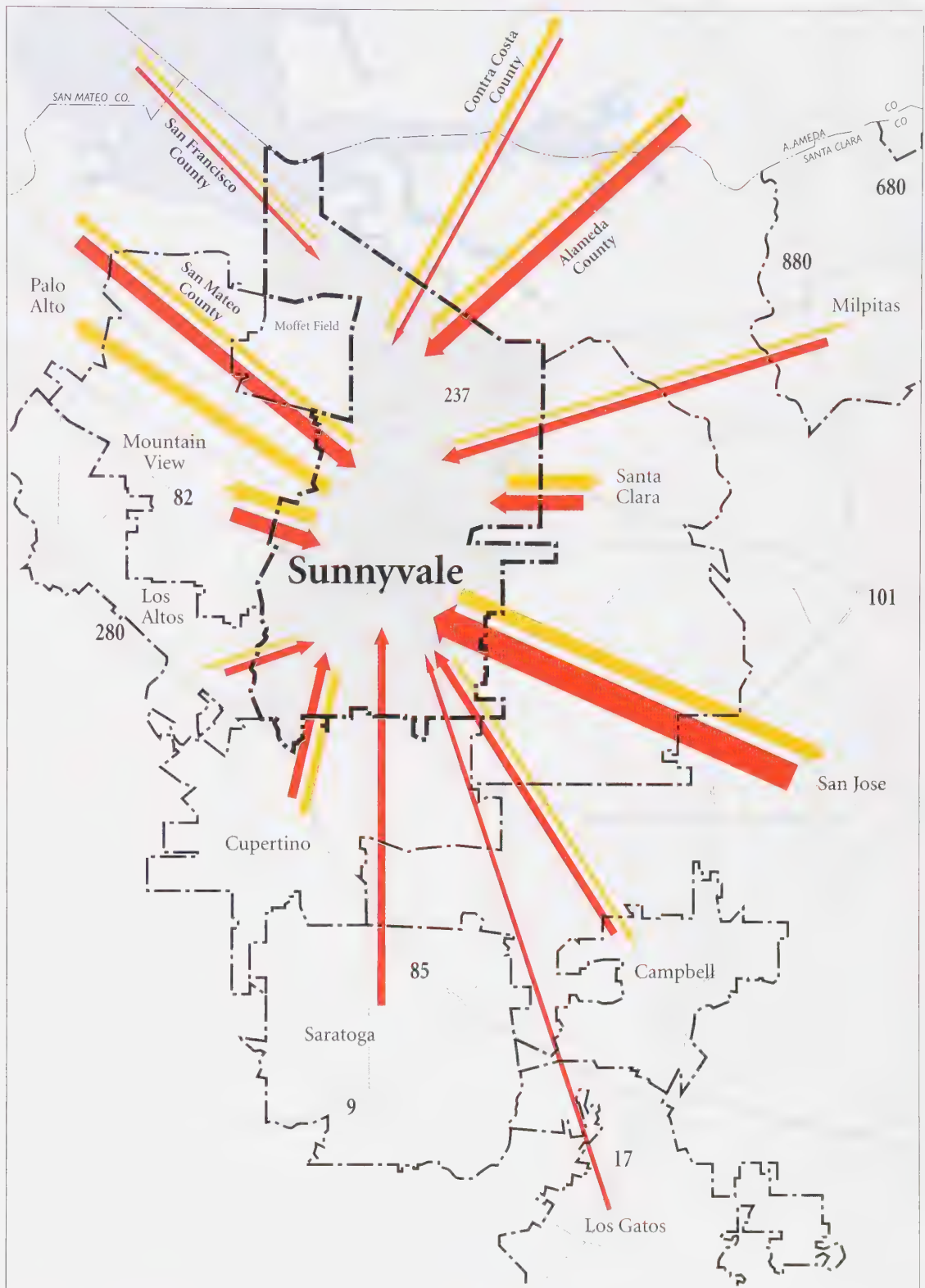
## Commute Behavior

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The City and regional road systems accommodate workers commuting within, into, out of, and through Sunnyvale. As previously discussed, Figure 2.9, Commute Patterns to and from Sunnyvale, schematically represents the commute patterns into and out of the City.

Mode share is a common measure used to examine the commute behavior of a community. Sunnyvale residents and workers are strongly oriented toward drive-alone commuting. The following paragraphs refer to employed residents and Sunnyvale workers. As previously defined, employed residents are Sunnyvale residents with jobs in any community, including Sunnyvale. Sunnyvale workers are individuals with jobs in Sunnyvale who live in any community, including Sunnyvale.

Figure 2.9: Commute Patterns to and from Sunnyvale Map



Commuters  
to Sunnyvale

- 500-1,499
- 1,500-4,999
- 5,000-9,999
- 10,000

Commuters  
from Sunnyvale

- 500-1,499
- 1,500-4,999
- 5,000-9,999
- 10,000

Source: U.S. Census, 1990



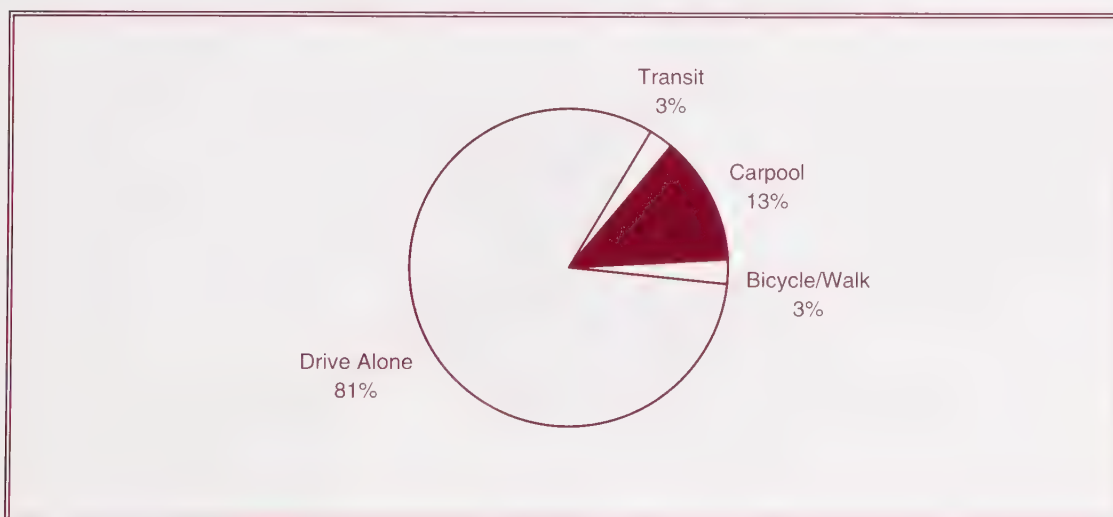
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### *Employed Residents*

In 1990, approximately 82% of Sunnyvale employed residents and 78% of Santa Clara County employed residents drove alone to work. In Sunnyvale, the mode share of drive-alone commuting increased by 8% between 1980 and 1990. The increase in drive alone commuting was accompanied by decreases in carpooling and public transit use. Mode share for Sunnyvale employed residents is compared in Figure 2.10.

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**Figure 2.10: Sunnyvale Employed Residents' Mode Share 1990**



Source: 1990 U.S. Census Data

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### *Sunnyvale Workers*

The mode share break down for Sunnyvale workers is very similar to the mode share for Sunnyvale resident workers. In 1990, approximately 80% of Sunnyvale workers drove alone, 15% carpoolled, 3% took transit, and 2% bicycled or walked to their jobs in Sunnyvale. Between 1980 and 1990, carpooling declined from 21.9% to 15.2% among Sunnyvale workers. This was offset by an increase in drive-alone commuting.

## THE ECONOMY

### Jobs

Between 1990 and 1994, the State of California and Silicon Valley experienced an economic recession, causing corporate downsizing and the loss of many jobs. By 1993, Sunnyvale's available jobs had decreased to approximately 107,000. By 1995, the recovery was underway with new jobs available but at a slower rate than the job growth of the 1970s and 1980s. Therefore, while the 110,870 jobs forecast for the year 2000 represents a total loss of 4,400 jobs over the decade, the community has already experienced those losses. There will be a gain of approximately 3,000 jobs between 1995 and 2000.

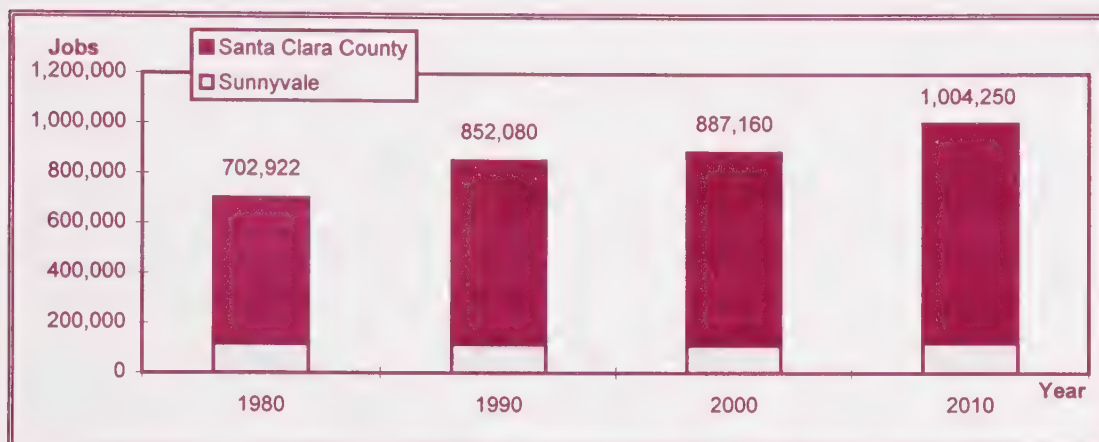
**Figure 2.11: Total Jobs in Sunnyvale**



Source: ABAG Projections '96, Report to Council, 8810, February 1996.

Compared to the county region, Sunnyvale's projected gains in job growth are slight. Between 1980 and 2010, Sunnyvale's job base is projected to increase by 5%. For the same 30 year period, Santa Clara County is expected to gain 43% more jobs. These relationships are depicted graphically in Figure 2.12.



**Figure 2.12: Total Jobs in Sunnyvale and Santa Clara County**

Source: ABAG Projections '96, Report to Council, 8810, February 1996.

## Businesses

Approximately 10,300 businesses were licensed to operate in Sunnyvale in 1995. Most of these were located within the City, although some businesses licensed to operate in Sunnyvale are located in other communities (e.g., contractors).

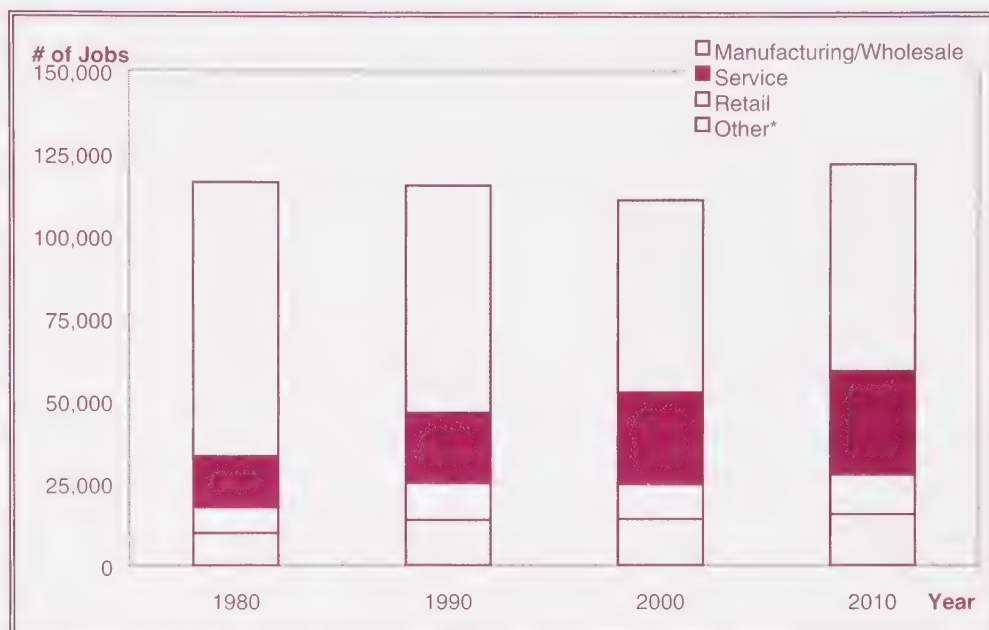
The number of business licenses issued yearly increased steadily between 1990 and 1994. Some of this increase may be attributed to an increase in home business license applications by residents who lost their permanent jobs during the economic recession of the early 1990s. Some residents may have established home occupations as a means of earning additional income beyond that earned by their regular employment. The downsizing of larger corporations may have resulted in former employees forming their own smaller companies. However, ABAG projects continued economic growth in Sunnyvale, with at least some of this growth coming from the creation of new business ventures.

## Employment Sectors

In 1995 Sunnyvale's largest employers included 78 with 100-500 employees and 14 with more than 500 employees. These largest employers account for nearly 40% of the jobs in the City. Manufacturing and wholesale activities provided most of the jobs

offered by these employers. Although the percentage of manufacturing and wholesale jobs has been declining since 1980, this job sector is expected to level off at about 52% of all Sunnyvale jobs and it is forecasted to maintain this level between 1995-2010. High technology manufacturing jobs, a sector that grew rapidly in Silicon Valley during the 1970s and 1980s, leveled off by 1995. High technology manufacturing employment (excluding aerospace manufacturing) is expected to remain constant as a share of total manufacturing employment in the Bay Area for the forecast period. (See Figure 2.13)

**Figure 2.13: Sunnyvale Employment Sectors**



\*"Other" includes agriculture, mining, and all other job categories.

Source: ABAG Projections '96, Report to Council, 8810, February 1996.

A 43% increase in retail sector jobs occurred between 1980 and 1990. Forecasts suggest that this job sector will stabilize to provide about 10% of the total jobs available through the year 2010.

The total number of service sector jobs in Sunnyvale increased by 63% during the period between 1980 and 1990, accounting for 20% of total jobs available. It is anticipated that the percentage of service sector jobs will continue to increase and then stabilize at about 26% of total jobs through the year 2010. The increase in the service sector jobs in Sunnyvale reflects similar trends in both the San Francisco Bay region and the nation.

The "other" job sector includes: construction, transportation, communications, utilities, finance, insurance, real estate, agriculture, mining, and government (including national security). This sector will be the most stable of the job sectors during the period 1990-2010, comprising a fairly constant 12% of total jobs available in Sunnyvale.

The changes in the number of jobs available in various sectors could result in changes in family or household incomes, since some job sectors have higher wages than others. For example, service and retail sector jobs are generally thought to pay less than manufacturing jobs. However, service sector jobs include independent contractors and consultants, and as more professional people operate in these capacities, the average income for this sector is expected to increase. Figure 2.14 compares projections for the "service" and "manufacturing/wholesale" job sectors for Sunnyvale and its neighboring cities.

**Figure 2.14: City Comparison of Job Sectors**

Source: ABAG Projections '96, Report to Council, 8810, February 1996.

In Sunnyvale and its neighboring cities, service sector jobs have been increasing in a fairly linear pattern. This pattern is expected to continue. Compared to its neighbors, Sunnyvale lost a significant number of manufacturing/wholesale jobs since 1980. Most of these losses were due to major cut backs in national defense spending, which had a direct impact on employment at Lockheed/Martin.



The kinds of jobs available in a city have many land use and transportation implications. For example, higher paying jobs increase family and household income, which in turn increases a household's ability to pay for housing. The demand for single-family homes (generally the most expensive and most desirable form of housing) could rise as a result of an increase in families with higher incomes. Higher paying jobs could also attract residents from other jurisdictions, increasing the number of employees using the roadway system for longer commutes. Studies also indicate that persons earning high incomes are less likely to use public transit. This situation could impact traffic to a point where roadway improvements would be needed to maintain acceptable levels of service (LOS). An increase in jobs in sectors with lower wages, on the other hand, could mean an increased demand for less expensive housing options.

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### *Women in the Workforce*

The US Census defines the labor force participation rate as the percentage of the population over 16 years old in the labor force. The combined labor force participation rate for men and women was 75% in 1990.

The U.S. Census reports a dramatic increase in the number of women in the labor force over the last several decades. In 1970, 47% of women and 29% of women with children under 6 years of age were in the labor force. In 1990, the percentage of female participation increased to 67% and 65% respectively. For comparison, the labor force participation rate was 84% for men in 1990.

It is expected that the percentage of women participating in the workforce through 2015 will fluctuate only slightly, ranging between 56% and 63% within the County. Increases in the number of women in the workforce have resulted in increases in demand for and development of a variety of child care facilities throughout the community.

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## Business Trends

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### *Home Occupations*

Since the early 1990s there has been a substantial number of applications for home occupation licenses. With corporate downsizing and increased interest in entrepreneurial opportunities, many people are establishing home businesses. Within Sunnyvale about 4% of all business licenses are home business licenses. Home businesses employ approximately 600 people. Substantial increases in home-based businesses would be needed to decrease auto trips to and from work sites in order to decrease the overall volume of traffic in the City.

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### *Telecommuting*

Within the last decade, there has been a gradual increase in telecommuting. Within large cities in the United States, many companies are implementing telecommuting plans as part of their compliance plans for the Clean Air Act Amendment of 1990. Telecommuting practices range from using telephones, computers, and modems to the use of facsimiles, integrated-services-digital networks (ISDN), and accessing mainframe databases. The use of visual communication through fiber-optic networks, desktop teleconferencing, and video cameras will likely become more common in the future. The number of ISDN connections is not public information; consequently it is difficult to determine the extent to which this mode is used in Sunnyvale.

Although the cost for ISDN services is gradually decreasing, and there may be an increase in its use, telecommuting is not projected to significantly affect travel demand. Companies may be using telecommuting as an alternative to building expansion to accommodate more employees. Consequently, the same number of people will continue to commute to such job sites. Also, some studies indicate that employees who telecommute may actually make more total trips, mostly off peak, than employees commuting to their work sites.

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### *Satellite Offices*

Satellite offices are small branch offices of larger companies. They are sited to harmonize with residential communities, thereby providing opportunities for reduced commute times and distances. By reducing vehicle miles traveled there is also a reduction in air pollution. Several companies have established pilot programs to determine if this approach is economically feasible and productive for the needs of both the businesses and employees. With future increases in traffic congestion likely, satellite offices may become a desirable alternative. They may be costly options during periods of downsizing.

Designated satellite offices do not operate within the City, but opportunities may emerge as companies outside of the area establish alternate sites. It is also possible that technological advances in electronic communication may enhance telecommuting from home residences, rather than the development of satellite offices and regional or sub-regional telecommuting centers.

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### *Retail Changes*

Within the last decade, the major change in retail activities has been the emergence of large “big box” retailers and discount retail centers for a wide range of products including electronics, general hardware centers, groceries, and household goods. Big box facilities often combine an interior warehouse design with simple and undistinguished elevations and facades. Big box retailers have a significant market range and draw customers from both Sunnyvale and surrounding communities.

Big box retailers provide significant sales tax revenues to the City and have gained in popularity over the last few years. Due to the volume of trips to these sites, there is a need to carefully assess the impact of traffic circulation and parking on surrounding communities. Since the City currently has several land uses that fit this category, it is difficult to ascertain if there is a market for an expansion of big box land uses.

Analysts suggest that the increase in the sales of personal microcomputers and specialized software applications may impact the nature of retail activities by providing retail shopping options for consumers from their homes. While it is difficult to anticipate the extent of the impact of these practices, forecasters believe that



this may reduce the amount of space needed for specific types of retail activities. If there is a gradual reduction in the need for retail square footage, there may also be a need to reexamine parking requirements for certain types of retail activities.

Despite these potential changes, the profile of retail activities will likely remain largely the same. Research suggests three retail trends over the next decades: 1) the supply of retail space continues to be overbuilt; 2) the difference between types of stores and types of centers will continue to blur; and 3) the information superhighway will provide more shopping opportunities in both homes and workplaces.

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### *Incubators and Start-ups*

Incubators are facilities that nurture small start-up businesses. A successful incubator promotes sound business practices to ensure that a new company leaves the incubator with a well-rooted organization. In most cases, an incubator specializes in business areas that are supported by the local economy. Cities use incubators for image promotion. Public organizations, such as cities or redevelopment agencies, are typical incubator sponsors.

Sunnyvale has one incubator, the NASA Ames Technical Commercialization Center. In 1996, the NASA Ames incubator was nurturing 18 technology-focused businesses.

In Sunnyvale, several executive suites appear to offer pseudo-incubator space. Executive office suites often lease 80% to 90% of their space to standard businesses. The remaining space, which might otherwise remain vacant, is marketed to start-up companies at below market rates. Management services vary; however, some real estate managers may be interested in establishing true incubators if they could secure funding.



## THE USES OF LAND

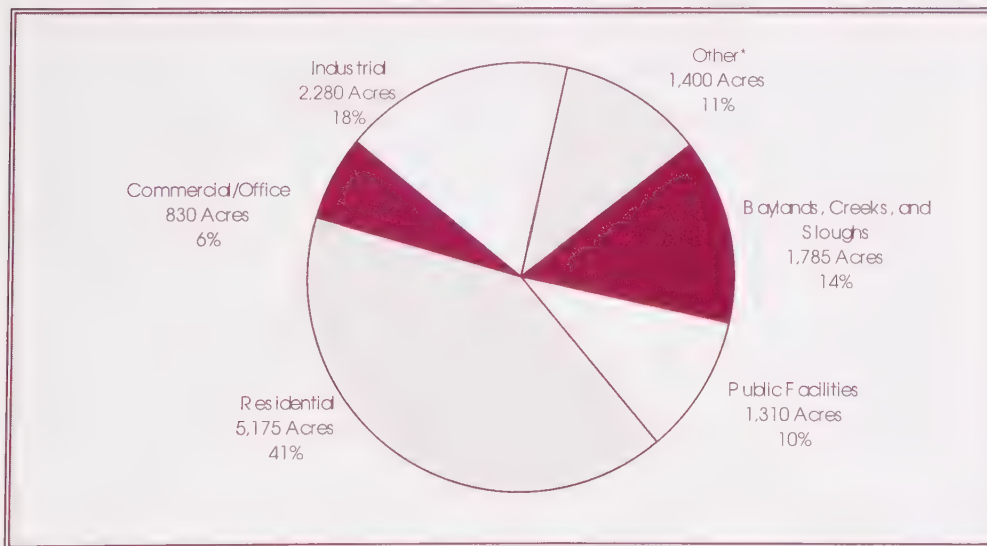
The following discussion provides basic information on the City's land resources in 1995, the base year used to provide a data framework for this Land Use and Transportation Element. Sunnyvale's land uses in 1995 are reviewed first, followed by an overview of rezoning activity in the early 1990s, which is one indicator of current demands for various types of land use.

### Land Uses in Base Year 1995

Sunnyvale's total land area is approximately 15,300 acres. About 17% of this land (2,500 acres) is devoted to streets, highways, and utilities. The remaining net land area of 12,800 acres support a wide variety of land uses.

In 1995, about 5,175 acres (40%) of Sunnyvale's net land area was designated for residential use, the largest single category of land use in the City. Public facilities (10%), industrial uses (18%), and commercial uses (6%) were other major land use categories. (See Figure 2.15.)

**Figure 2.15: Sunnyvale Land Uses (net land area)**



\* "Other" includes public and private schools, religious, military, parks, agricultural, and vacant land uses.  
Source: Sunnyvale Planning Division, Automated Land Information System, 1995

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### *Land Use for Transportation Purposes*

Streets and highways use most of the 2,500 acres of gross land area in the streets, highways, and utilities category. Thus, it is evident that providing transportation infrastructure requires a significant amount of land. In fact, streets and highways are only one part of the transportation infrastructure in Sunnyvale. The CalTrain stations and railroad tracks should also be considered as land uses that provide a portion of the transportation infrastructure, although at this time these land uses are included under the public facilities category, discussed below.

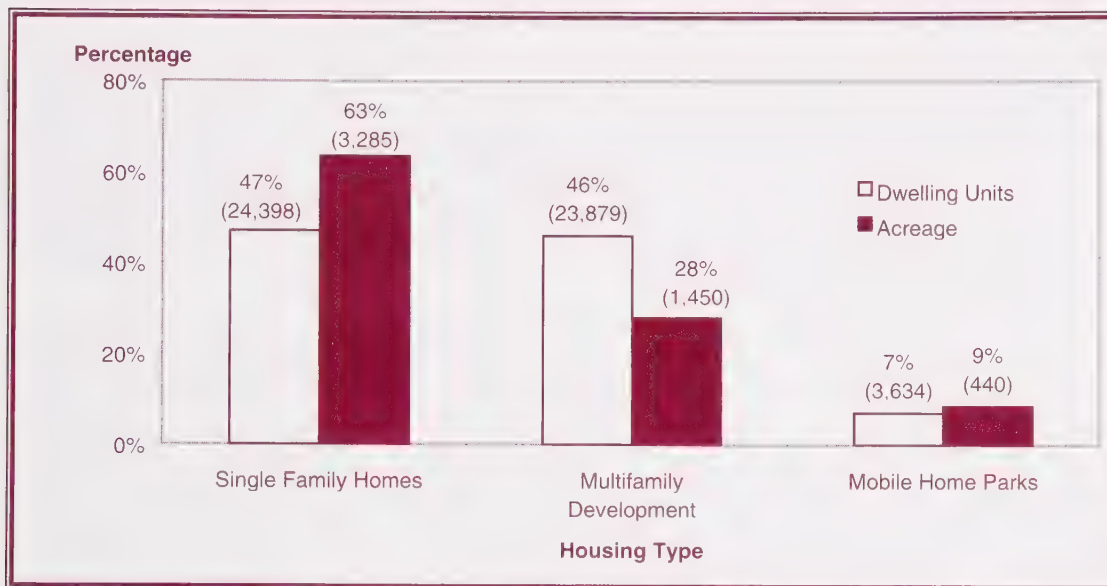
Perhaps the most interesting statistic is the amount of land that the average City devotes to the automobile. If parking lots, driveways, public and private garages (including single-family home garages), automobile service stations, automobile sales establishments, and auto repair facilities are included along with streets and highways, it is estimated that more than 65% of the land area in the average city is used for the automobile. Although information specific to Sunnyvale is not available, we can reasonably assume that the amount of land Sunnyvale uses for the automobile would fit this average city profile.

Currently, however, driveways, parking lots, and garages provided for residential developments are considered to be part of the residential use, and driveways, parking lots, and garages that are part of commercial or industrial developments are similarly considered as part of those uses. Automobile service stations and repair facilities are considered to be commercial uses.

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### *Residential*

Of an estimated 51,911 dwelling units located in Sunnyvale in 1995, 47% of these were detached single-family homes, 46% were multifamily attached units, and 7% were mobile homes. (See Figure 2.16.) If Sunnyvale were residentially built-out to the maximum density allowed under zoning regulations in place in 1995, there could be as many as 61,361 residential dwelling units in the City. Figure 2.16 compares the number of acres used for various types of housing. The total number of residential units for each housing type is also indicated.

**Figure 2.16: Residential Land Use and Acreage**

Source: Sunnyvale Planning Division, Automated Land Information System, 1995

From 1970 to 1980, the number of housing units in Sunnyvale increased by 40%, from about 32,000 units to almost 45,000 units. These new units were predominately single-family homes and apartments and did not include many townhome or condominium units. During the 1980s, Sunnyvale's housing supply increased another 15% to almost 52,000 units. The vast majority of this new housing was multifamily units, with about two thirds of the units for rent (apartments) and the remaining one third for ownership (condominiums and townhomes).

The trend in housing type has been changing in the 1990s. The small lot single-family housing style has been gaining in popularity and competes strongly with the condo and townhome market as an ownership choice. Other factors which have discouraged multifamily development in the early 1990s include the recession, lawsuits against condominium developers for manufacturing defects, and the loss of the saving and loans as an equity source. The second half of the 1990s may see a shift in this trend with the end of the recession, increasing rents, and very low vacancy rates.

**Sunnyvale's residential resources in 1995 were:**

Aging: Approximately 86% of the housing units in existence will be more than 20 years old by the year 2000. Some deterioration of older units could begin to occur.

In good general repair: The pattern of upkeep and repair activity indicated a general practice of good maintenance for Sunnyvale's residential property.

Under Design Review authority: Design of residential development including new construction and additions was guided by the City-Wide Design Guidelines, adopted in 1992.

Not affordable for many: Approximately 37% of households in Sunnyvale experienced housing cost burden. Low-income renter small households and low-income elderly homeowners were the largest subgroups with housing problems.

Providing a variety of options: Affordable housing options included small lots/small homes, multiple-family housing options in Industrial to Residential sites, Single Room Occupancy developments (SROs), accessory living units, and homeless shelters and other transitional housing.

The use of homes for business purposes continued to be allowed, as long as the home business met the criteria provided in the Zoning Code. Zoning Code regulations for home occupations were designed to protect the residential quality of the home and neighborhood. Approximately 4% of all businesses located in Sunnyvale in base year 1995 were home businesses.



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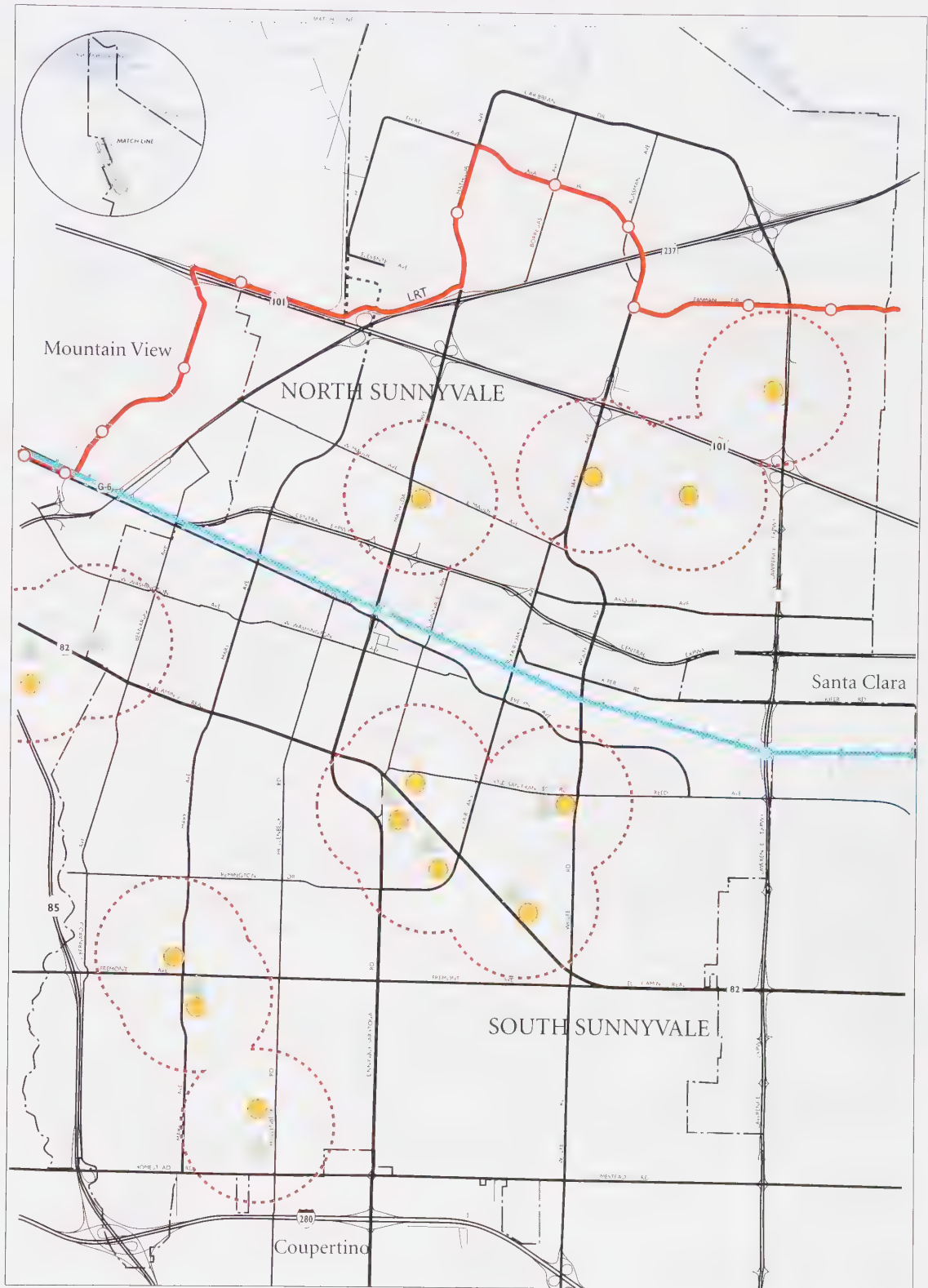
### *Commercial/Office*

Commercial and office land uses occupied approximately 830 acres, or 6% of the net land area in Sunnyvale in 1995, including auto-oriented uses, highway commercial strip developments, a regional shopping center, the old Sunnyvale downtown (Murphy Avenue), and neighborhood shopping centers. Commercial uses were dispersed throughout the City in neighborhood shopping areas, and were also highly concentrated along El Camino Real and in the downtown area.

There are more than 30 neighborhood shopping centers, as well as several stand-alone grocery stores and drug stores, located throughout the City. Figure 2.17 indicates the location of the City's neighborhood shopping centers which include a grocery store and/or a drug store as an anchor tenant. A 1/2 mile radius (an average 10 minute walking distance) is shown for each of these neighborhood commercial centers. Figure 2.17 demonstrates the level of pedestrian access to commercial services. It is estimated that only about 10% of Sunnyvale's residents can easily access these centers as pedestrians. In the northern portion of the City, none of the neighborhood shopping centers have drugstores, and only four of the centers have grocery stores.

Office uses were dispersed throughout the City, since they were either permitted or could be considered through a permit process in most nonresidential zoning districts. Because office uses generally have less impact on adjacent land uses than commercial uses, they often provide a buffer or transition area between residential and commercial uses.

Figure 2.17: Neighborhood Shopping Centers Map



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## *Industrial*

Industrial uses were concentrated in the area of the City that is north of the Southern Pacific Railroad. Land used for industrial purposes occupied approximately 2,280 acres, or 18% of Sunnyvale's net land area.

Industrial properties have developed steadily since the 1950s. Remodeling, renovation, and rebuilding are continually occurring to meet changing industrial needs and to accommodate changing technologies and economic conditions. Comprehensive surveys on the condition of industrial properties have not been conducted.

Residential and commercial uses could also be considered within industrial zones through a permit application process. The Futures Study sites that allowed more intense industrial development or housing development were primarily located in industrially zoned areas. (See Appendix B.)

Commercial and service establishments located in industrially zoned areas offer convenience for industrial employees, save energy, and decrease traffic by minimizing the travel that would otherwise be needed to obtain these services. For this reason, retail, personal services, restaurants, lodging, and meeting facilities can be considered for location in industrial areas through a permit application process.

Because industrial properties generally offer lower rents than commercial properties, it has become more common to sell or lease vacant industrial space for use by religious organizations and for child care centers.

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### *Public and Quasi-Public Facilities*

Facilities operated by a government agency or a private agency serving the general public are provided for in the General Plan under the category of Public Facilities. Sometimes the term *quasi-public facilities* is used for those facilities that are owned or operated by a private organization, such as a private school or church organization, which also are used to serve the general public.

Public and quasi-public facilities accounted for approximately 15% of net land area (1,865 acres) in base year 1995, with 1,310 acres used for public facilities and 555 acres used for quasi-public facilities. In addition, open space in the form of baylands, creeks, and sloughs accounted for another 14% (1,785 acres) of the City's net land area.

The City operated a variety of facilities for its citizens, including the City Hall complex, the Public Library, the Sunnyvale Center for Innovation, Invention and Ideas (SCI<sup>3</sup>), NOVA Private Industry Council, Public Safety, and the waste management facilities (the Water Pollution Control Plant and the Sunnyvale Materials Recovery and Transfer [SMaRT] Station). In addition, the City operated the Tennis Complex at Las Palmas Park, two golf courses, the Community Center, and the Senior Center on McKinley Avenue.

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### *Open Space/Parks*

Open space includes neighborhood parks, athletic or play fields, trails and paths, special use parks, and regional parks. In 1994, 838 acres, or approximately 7% of the net land area in the City, were used for open space. Of this land area, 351 acres were owned by the City, 177 acres were owned by the County, 205 acres were owned by school districts, 52 acres were owned by other public agencies, and 53 acres were owned by private entities. In 1994, Sunnyvale had 6.9 acres of open space available per 1,000 population, which is approximately 10% above the National Minimum Standards. (See Figure 2.18.) A map noting the locations of these facilities is provided in the Open Space Sub-Element.



**Figure 2.18: Open Space in Sunnyvale**

Type of Facility	Number	Acres
Neighborhood parks	16	139
Athletic play fields	25	250
Trails	3 (1 bicycle trail)	32
Special use Parks/facilities	9	235
Regional Park	1	177
<b>Total</b>	<b>54</b>	<b>833</b>

Source: City of Sunnyvale, Parks and Recreation Department, March 1996

### *Public Schools*

In 1995 Sunnyvale was served by four school districts, including Sunnyvale Elementary School District, Cupertino Union School District, Santa Clara Unified School District, and Fremont Union High School District. These school districts operate 17 school sites in Sunnyvale, including twelve elementary schools, four middle schools, and one high school. Some residents are served by schools located in adjacent cities.

Nine school sites were closed between 1984 and 1995, due to decreasing enrollment. The closure of school sites often means that local schools are not within walking distance for many students. Unless public transit is available, parents must drive their children to school or provide their driving-aged teenagers with cars to get to school. The result is an increase in local traffic and air pollution. The closure of local school sites provides another example of how land uses affect transportation activities. However, the closure of the schools has not meant that the land became unused. Several school sites were sold and redeveloped for residential use. Others were converted to private schools, special training facilities, or day care facilities.

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### *Private Community Facilities*

Private community facilities included private recreational facilities, the Sunnyvale Historical Museum, membership organizations with special purpose halls, religious institutions, cultural centers, homeless shelters, convalescent hospitals, specialized medical clinics and facilities, private schools, child care facilities, and dependent care facilities.

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### *State and Federal Facilities*

Several state and federal facilities were located within Sunnyvale in 1995, including the CalTrain station, the Social Security Office, the State Employment Development Department, and three federal post offices. Portions of Moffett Federal Airfield and Onizuka Air Force Base are also located in the City. They are discussed below.

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### *The Utilization of Federal Property in Transition*

Moffett Federal Airfield, NASA Ames Research Center, and Onizuka Air Station are three significant federal facilities and properties located in Sunnyvale and its sphere of influence. These large employment sites have been critical to the aerospace and defense-related research and technology for both Silicon Valley and the nation. They have also been a major component of public and private employment in the immediate vicinity. The downsizing and restructuring of both the federal government and private aerospace/defense industries have resulted in changes in the structure and operations of these facilities, as discussed below.

*Moffett Federal Airfield:* Since the adoption of the Moffett Field Comprehensive Use Plan, there have been ongoing discussions regarding potential uses of Moffett Federal Airfield. The City of Sunnyvale supports continued federal ownership and operation of this facility.

The City will closely monitor any changes to the status of Moffett Federal Airfield. The City will also continue to exert its influence to achieve the best outcome for the community.

*NASA Ames Research Center:* The focus of programs at the NASA Ames Research Center includes the Center of Excellence for Information Technology, astrobiology, commercialization of NASA technology, commercial aerospace programs, and aviation testing and safety. These programs, which undergo periodic change based on leadership and federal budget initiatives, are closely tied to research and industry programs in Sunnyvale and the Bay Area region. As programs change, there may be impacts, positive and negative, on the local and regional industry base. However, the focus of information technology, astrobiology, commercial partnerships, and aviation research tracks with industry trends.

*Onizuka Air Station:* The Onizuka Air Station has been one of two Department of Defense satellite on-orbit command and control facilities in the Air Force inventory. With the 1995 Onizuka realignment decision, the City is involved in planning for conversion of Onizuka's defense capabilities to civil and commercial application of the technologies at Onizuka.

This defense conversion planning will mitigate loss of jobs in Sunnyvale and loss of technology skills in the region. The realignment is scheduled to be completed no later than 2004.

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## Rezoning Activity

A look at rezoning activity provides one measure of the demand for various types of land uses, as well as a reflection of City land use policies. If, for example, the market requires more land for residential development than is available under the existing zoning pattern, there may be requests to rezone land from industrial or commercial designations to residential.

Eighty-eight zone changes (478 acres) were approved between 1984 and 1994. While most of these zoning changes involved basic changes in land use (e.g., from industrial to residential), some simply involved the addition of a combining district, such as the Planned Development (PD) combining district, with the base zoning.

the City adopted several special planning documents, including the Southern Pacific Corridor Site Specific Plan, the Futures Study, the Downtown Specific Plan, the Precise Plan for El Camino Real, the 101/Lawrence Site Specific Plan, and the Lockheed Site Master Use Permit. (These special plans are outlined in Appendix B). These plans affect the City's land use and zoning in significant ways. For example, the Futures Study created a new combining district, Industrial to Residential (ITR), which was applied to 205 acres, allowing both industrial and residential uses for those properties. In addition, the City created new zoning regulations for the area covered by the Downtown Specific Plan and a new combining district for El Camino Real.

Seventy-one percent of the zoning changes that occurred between 1984 and 1994 created residential zoning on land previously zoned for other uses, or added a PD combining district to allow residential use of land zoned primarily for other uses. Some of the changes to residential zoning were initiated by the City, while others were initiated by property owners. These changes were in response to an ongoing market demand for residential development during this period.



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## TRANSPORTATION

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This section reviews Sunnyvale's transportation system in 1995, then looks at the outside influences and constraints, such as City land use decisions and their implications, that affect transportation planning for the City.

In reviewing the 1995 transportation system operating in Sunnyvale, the City's transportation capacity must be considered. Transportation capacity is determined by the following:

- ◆ The existing and planned transportation infrastructure (e.g., roads, signalization, transit opportunities, pedestrian and bicycle facilities)
- ◆ The use of infrastructure, including influences on transportation demand such as incentives or policies to influence travel time, mode choice, and route selection

The object of a transportation system is to provide opportunities for travel. Travel is defined as conveying people, goods, and services over distances. Travel within Sunnyvale takes a variety of forms in response to travel demand, from driving to transit to flextime to alternate modes. Transportation is a complex web of travel modes, operators, and behaviors. This section describes the existing and projected transportation infrastructure and the way the transportation system is used.

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### Automobile Transportation

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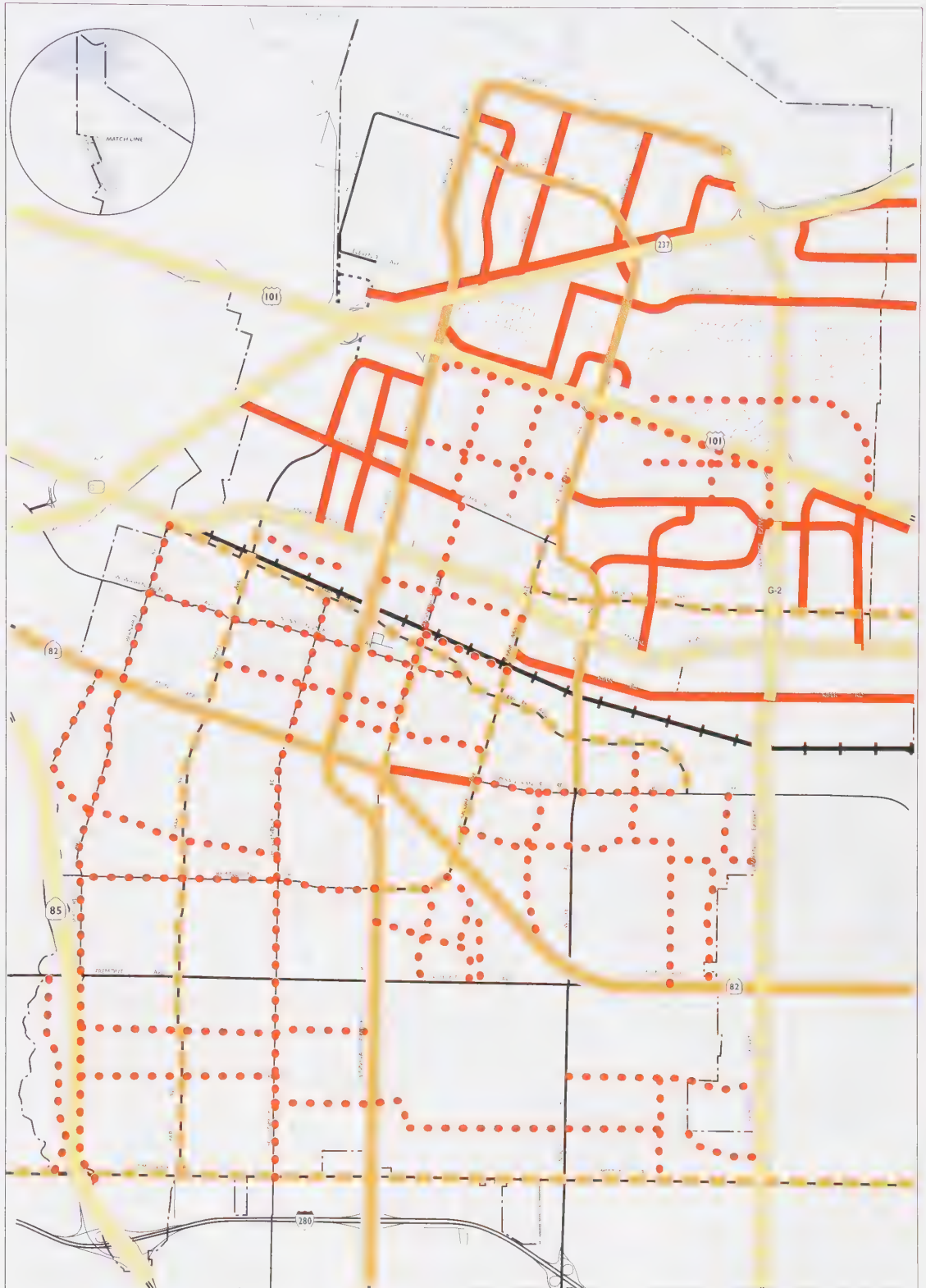
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#### Roadways

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Sunnyvale's network of approximately 298 miles of roadways is extensively traveled by residents and commuters. Approximately 50 miles of this network are major roadways serving both local and regional users. Freeways and expressways comprise approximately 13 miles of this major roadway network system. Arterials provide approximately 35 miles of roadway, and collectors provide approximately 58 miles of roadway. Figure 2.19 shows the functional classification of roadways in the City.

Figure 2.19: Roadway Classification Map



Source: Sunnyvale Dept. of Public Works, 1997

- |                                |                                 |                       |
|--------------------------------|---------------------------------|-----------------------|
| State Freeway                  | Class 1 Arterial                | Residential Collector |
| County Expressway              | Class 2 Arterial                |                       |
| Regionally Significant Roadway | Commercial/Industrial Collector |                       |

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### *Street Design Standards*

The City has established street design and construction standards for roadways within Sunnyvale. These standards generally come from three primary sources: industry standards established by the American Public Works Association (APWA); the CalTrans design standards; and the City's Standard Specifications and Standard Details Manual. All of these specifications are periodically updated.

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### *Intersection Control*

Uncontrolled, conflicting intersection traffic movements can result in delays and accidents. Intersection traffic signals provide the most efficient control of high volume conflicting movements. Properly designed traffic signals help to maximize traffic flows with minimum delays and reduce certain types of accidents.

As of 1997, Sunnyvale has 116 City controlled traffic signals in operation, 59 of which are interconnected. Traffic signal interconnection is used to reduce the number of stops by providing successive green phases at adjacent signalized intersections in the major direction of travel. Other agencies and organizations such as the Santa Clara Valley Transportation Authority (VTA), the State of California Transportation Agency (CalTrans), and Lockheed Martin also operate traffic signals on public and semi-public roadways within the City.

The City is responsible for intersection operations and traffic signal and sign preventive maintenance. The City currently contracts out signal maintenance functions to a private firm. Traffic signal operations are analyzed annually by City staff to assure traffic safety and to reduce the City's potential liability.

The City conducts field observations, annual reviews of accident and traffic volume data, responds to traffic control warrant studies, and responds to public requests prior to considering and planning new intersection controls.



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### *Roadway Maintenance*

The City maintains or contracts maintenance of 595 lane miles of street surface and the associated signs and striping.

*Pavement Management:* The City uses a Pavement Management System (PMS) to identify and prioritize major preventive and corrective maintenance needs. All City streets are surveyed and rated on a biennial basis. Maintenance needs are identified by measuring observed pavement conditions against a City standard for system-wide average pavement surface conditions and standards establishing road repair strategies with the condition rating for individual street segments. Depending on the rating of a specific street, differing repair approaches ranging from patching to reconstruction may be required. Larger resurfacing jobs are usually contracted out to private firms, with City crews primarily handling preventive maintenance such as crack sealing and filling of potholes.

Pavement management has been a focal point for innovation in the City. Over the last ten years, the City's PMS has reduced annual maintenance costs by nearly 25%. The current focus is on new materials and processes that will result in longer lasting surfaces. Staff regularly evaluates new products and techniques, and adopts successful, cost-effective methods.

*Roadway Marking and Signing:* The City also provides roadway signs and striping.

*Street Cleaning:* Street, roadside area, parking district, walkway and bike path cleaning are ongoing City services. Street cleaning of all City streets occurs on a bi-weekly basis, in addition to an as-needed or requested basis.

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### *Street Lighting*

The City maintains an extensive system of street lights for the purpose of pedestrian and vehicle way lighting and to reduce the likelihood of crime. Streetlights light arterial streets, industrial area streets, selected residential areas, and City-owned parking lots. City-owned streetlights predominate, although Pacific Gas & Electric also owns and maintains some lights in the City. City-owned lights on industrial arterial streets and in City-owned



parking lots are routinely surveyed for maintenance needs. The City also monitors new lighting technologies and circuiting techniques to reduce energy and maintenance costs.

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### *Street Trees and Landscaping*

The City has policies and standards for street trees and landscaping. Street trees and landscaping promote the City's image, define the City's boundaries, characterize roadways and districts, and enhance adjacent property.

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### *Parking*

The City regulates parking on City streets and operates a downtown parking district. Most residential streets have no parking restrictions. All parking on City-owned lots and streets is free. The only pay-parking lot in Sunnyvale is operated by CalTrain at the CalTrain Station. Parking on City streets and lots near the CalTrain Station is subject to maximum time restrictions during the day to discourage parking by commuters. The City imposes minimum on-site parking requirements for private development.

The Downtown Parking District was created in the early 1960s to encourage downtown revitalization. The District removed the requirement that individual properties provide their own parking, which might have discouraged development in this older area of the City. All properties within the district are now assessed a share of the costs of maintaining and operating the Parking District facilities.

Parking standards for new development are defined in the Sunnyvale Municipal Code. These standards are occasionally modified in response to new or changed conditions, such as new land use types or changing parking demands. The City's parking standards are comparable to other jurisdictions.

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### *Long Range Infrastructure Planning*

The City has embarked on a long range infrastructure planning effort. This effort recognizes increasing maintenance needs over the next 40 years as facilities age. Those needs are managed through database inventories of the City's major infrastructure components. Transportation infrastructure has been identified as a key component.

Inventories, replacement schedules, and detailed cost estimates have been prepared for traffic signal equipment, bridges, overpasses, street surfaces, street lights, sidewalks, and landscaping. Budgets have been modified and, where necessary, new budgets and rolling funds have been created to cover the complete costs of replacement of infrastructure.

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### *Traffic Volumes*

Sunnyvale's major roadways normally handle high traffic volumes, although the level of traffic sometimes fluctuates due to changing economic conditions, such as business downsizing and restructuring. For example, a peak of 665 million vehicle-miles were traveled in 1989, whereas 630 million vehicle-miles were traveled in 1995. This five percent drop in traffic volume coincides with an economic downturn experienced by the city and county between 1989 and 1995. Sometimes traffic patterns change as new roadways (such as SR-85) are opened or existing roadways are improved, influencing commuters to change their routes. While this response may move traffic from one roadway to another, the total City-wide traffic volume may not change.

Two freeways (US-101 and SR-237) cross Sunnyvale in a generally east-west direction. East-west travel is also served by Central Expressway. When SR-237 was improved to freeway standards between Maude Avenue and Interstate 880 (Milpitas), regional traffic flow improved at some Sunnyvale interchanges. A significant share of the traffic on the City's streets, particularly commute peak hour traffic, is in the north-south direction. Besides SR-85, three major arterials or expressways serve the north-south traffic: the Mathilda Avenue/Sunnyvale-Saratoga Road corridor, Lawrence Expressway, and the Wolfe Road/Fair Oaks Avenue corridor. The completion of the southern end of SR-85 from Stevens Creek Boulevard to US-101 in south San Jose has diverted some long-distance trips from US-101 to SR-85. While the new freeway has not significantly affected

traffic volumes in the north-south corridors of the City, the number of vehicles accessing the freeway via Fremont Avenue has increased.

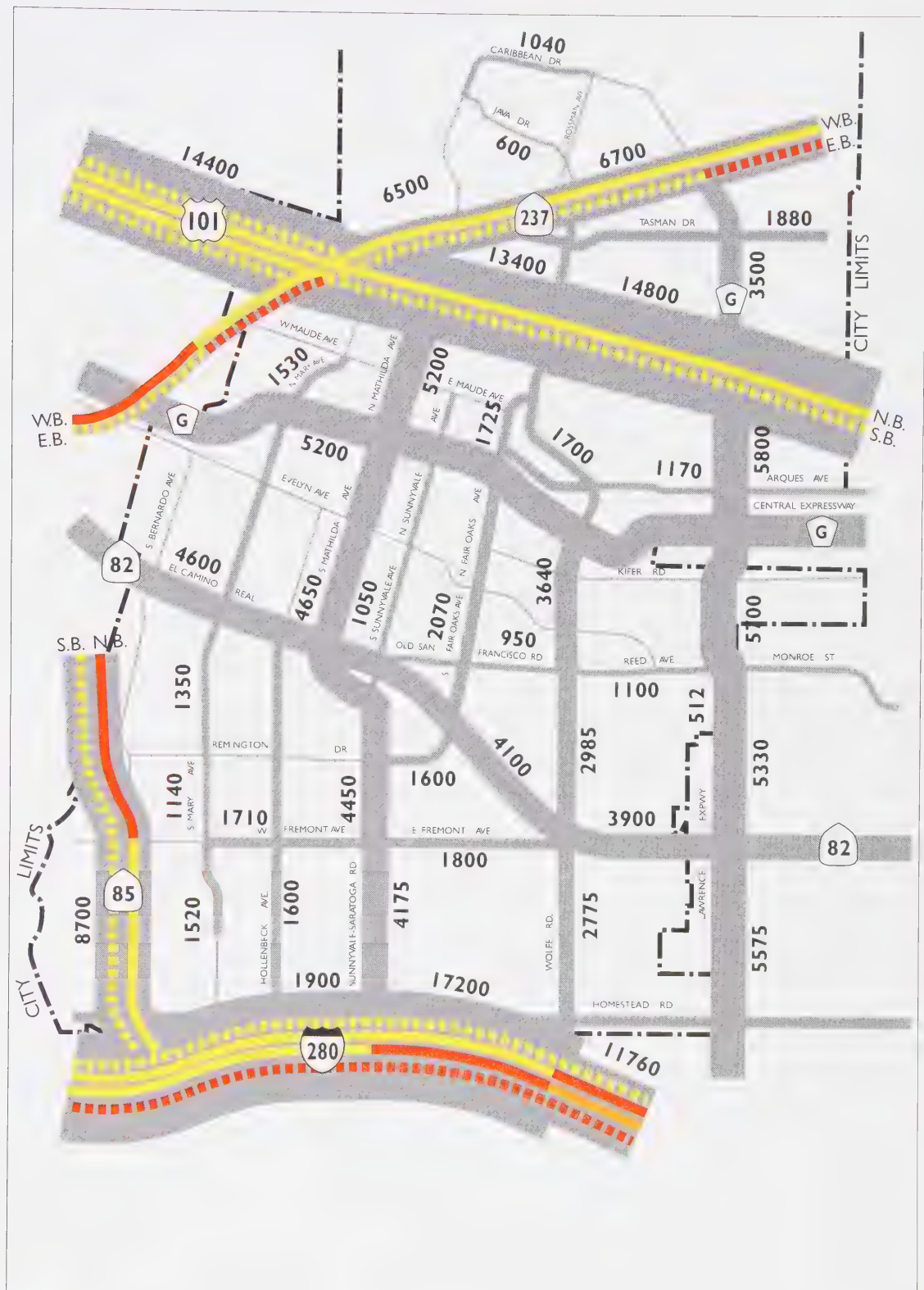
Figure 2.20 shows peak hour traffic flows in 1995. Due to their high capacity, freeways accommodate the highest volumes. With eight lanes, US-101 and I-280 had traffic volumes of nearly 14,000 and 17,000 vehicles per hour respectively during peak commute hours. SR-237 and SR-85, each with four to six lanes, served between 6,500 and 8,000 vehicles per peak hour.

Expressways also carried high volumes of traffic (5,000 or more vehicles per peak hour during weekdays). However, expressway capacity is less than freeway capacity due to at-grade traffic signal controlled intersections.

In 1995, several arterials were serving very high demand. Two of the high volume arterials, Mathilda Avenue/Sunnyvale-Saratoga Road (with an average peak hour volume of 5,200 trips) and Wolfe Road (with 3,640 peak hour trips) are major north-south corridors. El Camino Real, an east-west arterial operated by the state, also carries high volumes of traffic, averaging over 4,000 peak hour trips. Arterial streets are directly accessed at intersections and by residential and commercial driveways. The result is an increase in traffic interruptions, restricting the street's ability to handle traffic volumes. Therefore, these streets are prone to congestion at lower traffic levels than freeways and expressways.



Figure 2.20: 1995 Peak Hour Traffic Flows Map



Source: Caltrans; City of Sunnyvale Dept. of Public Works

- |  |                |  |              |
|--|----------------|--|--------------|
|  | LOS ABC (a.m.) |  | LOS F (a.m.) |
|  | LOS ABC (p.m.) |  | LOS F (p.m.) |
|  | LOS DE (a.m.)  |  |              |

Scale: 1000 vehicles = 0.04"





### Level of Service (LOS)

The performance of roadways is assessed by the operating levels of service. LOS is influenced by traffic volumes, available roadway capacity, and traffic control features. LOS is indicated on a scale from A (free flow) to F (congested). (See Figure 2.21 for term definitions.)

**Figure 2.21: Level of Service (LOS) Ratings**

LOS	Intersection Delay (Seconds)	Traffic Flow Condition
A	0 to 5	Free flow
B	5 to 15	Some restricted speed
C	15 to 25	Restricted speed; intersection left-turn backups
D	25 to 40	Some extensive delays; little freedom to maneuver
E	40 to 60	Traffic approaching full capacity; some stoppage
F	More than 60	Long stoppages; low operating speeds

Sunnyvale's 1995 LOS at selected intersections are shown in Appendix C. Monitoring the LOS on Sunnyvale roadways is one of several tools that helps determine which sections of the roadway network are performing poorly and, therefore, should be considered for improvement projects or programs. State law and City policy determine acceptable LOS.

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## Projected Automobile Use

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### *Future Traffic Volumes*

It is expected that the strong north-south orientation of auto travel in Sunnyvale will continue at least through 2010. The anticipated demand for SR-85 is over 11,000 trips during the afternoon peak hour. Certain segments of Lawrence Expressway will have to handle close to 10,000 trips during the same peak hour. On the other hand, east-west roadways, including both arterials and freeways, will generally experience only modest increases in traffic demand. The exception is SR-237, which may add as many as 4,000 trips in the afternoon peak hour, for a total of over 10,500 peak hour trips.

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### *Future Levels of Service*

Studies indicate that increases in future traffic volumes will result in poorer roadway performance. The projected performance of selected intersections is shown in Figure 2.22 below. Levels of service at many intersections will decrease. Some may operate at LOS F if no improvements are made beyond those currently included as programmed projects.

**Figure 2.22: 1990 and 2010 Projected PM Peak Levels of Service**

Intersection		LOS	
		1990	2010
Mary Avenue	@ El Camino Real (SR 82)	C	E
	@ Fremont Avenue	C	D
	@ Maude Avenue	B	C
Mathilda Avenue	@ El Camino Real (SR 82)	D	E
	@ Java Drive	C	C
	@ Maude Avenue	B	D
	@ Washington Avenue	C	F
	@ Iowa Avenue	B	F
Fair Oaks Avenue	@ Arques Avenue	C	D
	@ Crossman Avenue	B	E
	@ El Camino Real (SR 82)	E	E
Lawrence Expressway	@ Arques Avenue	D	E
	@ Homestead Avenue	E	F
	@ Reed Avenue/Monroe Street	D	F
	@ Lakehaven/Sandia	E	E
	@ Tasman Drive	C	F
Sunnyvale-Saratoga Road	@ Fremont Avenue	D	D
	@ Homestead Road	D	E
	@ Remington Drive	D	E
Wolfe Road	@ Homestead Avenue	C	E
	@ El Camino Real (SR 82)	D	E
	@ Fair Oaks Avenue	A	A
	@ Fremont Avenue	D	E
	@ Kifer Road	C	E
	@ Old San Francisco Road/Reed Avenue	D	D

Source: Sunnyvale Futures Study, ADEIR, August 1992, and Lockheed Master Use Permit Application DEIR, January 1994, Downtown Development Program EIR, Kaiser Replacement Project EIR, Tasman Corridor Project EIS/R.

Lawrence Expressway is expected to be operating at LOS F at several intersections prior to 2010. Most intersections on other roadways will still have enough capacity to handle 2010 traffic without violating the Congestion Management Program (CMP) standard of LOS E. However, with the current City standard at LOS D, several intersections may operate at LOS E in the absence of mitigation measures, thus violating the City standard.

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### *Major Planned Improvements and Mitigation Measures*

Typically, major roadway improvements are planned and constructed in order to mitigate existing and anticipated traffic problems. Roadway improvements usually require long lead times (typically 5 to 10 years). Most major projects of regional impact are under state and/or county control. A list of near-term improvements that were included within the City's ten year Capital Improvements Program budget at the time this plan was prepared is included in Appendix D.

The City plans to implement some roadway improvements to mitigate the impacts of major land use plans that have been approved. These improvements are shown in Appendix E. These improvements had not been included in the City's ten year Capital Improvements Program budget at the time this plan was prepared.

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### *Bicycle Transportation*

The 1995 Sunnyvale bicycle system includes a 2.6 mile bicycle path, 15.0 miles of bicycle lanes, and 4.6 miles of bike routes, for a total of 22.2 miles of bikeways. The City's bikeway network is limited. It does not adequately serve major employment sites in the northern part of the City or other potential high-use sites, such as schools. There are few north-south connections and only two bikeways traverse the City east-west. (See Figure 2.23)

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### *Integrating Sunnyvale's Bikeways with Other Jurisdictions*

There are a few links between Sunnyvale bikeways and bikeways in the neighboring cities of Mountain View, Cupertino, and Santa Clara. Santa Clara County allows bicycles on all expressways. Central Expressway links Sunnyvale, Mountain View, and Santa Clara, while Lawrence Expressway links Sunnyvale with Santa Clara and Cupertino to the south.



Figure 2.23: Sunnyvale Bicycle System Map (without "undesigned streets" classification)



State and regional programs that encourage and support bicycling include the Transportation Development Act, Congestion Management Program Transportation Demand Management Element, and the Santa Clara Valley Transportation Authority (VTA) T2010 transportation plan. These plans encourage linkages to improve regional bikeway connections. The Transportation Development Act provides a portion of state sales tax revenue for local bicycle and pedestrian projects.

City policy supports use of Santa Clara Valley Water District (SCVWD) rights-of-way for bicycling. The SCVWD will allow bicycle use subject to certain conditions. Most SCVWD facilities are unsuitable for cycling in their current physical configuration. No bikeways had been developed in these rights-of-way by 1997.

Improvements have been made to encourage linkages between bicycling and transit. Some facilities, including bicycle lockers and racks, are provided at the two CalTrain stations in Sunnyvale. Cyclists can bring bicycles on board all CalTrain trains. Bicycles can be brought on all Santa Clara Valley Transportation Authority bus routes and the light rail system seven days a week. The VTA has installed racks on all buses and is expanding bike capacity inside all light rail trains. A recent survey showed that nearly 2% of total daily passengers boarded the VTA transit system with a bicycle.

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### *Current Bicycle Use*

Less than 1% of all commute trips made by Sunnyvale residents are made by bicycle. The percentage of bicycle commute trips made by all Santa Clara County residents is slightly higher at 1.5%. No data is available on the frequency of bicycle trips for recreational or shopping purposes. Bicycle mode share may potentially increase if the City's bicycle network, and in particular the north-south linkages, are further developed.

The state and the City have dedicated funds to implement minor improvements for bicycling, such as providing for bike parking. It is uncertain whether this funding will continue. The City adopted a bicycle plan in 1984 and revised it in 1993. The City has also established a citizens Bicycle Advisory Committee (BAC) to advise the City Council.

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## Pedestrian Transportation

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Three primary characteristics of the land use pattern in Sunnyvale influence opportunities for pedestrian travel:

- ◆ The separation of land uses
- ◆ The curvilinear/branch road/cul-de-sac street pattern that results in fewer connections between different parts of the City
- ◆ The relationship of buildings to the streets, such as neighborhood commercial centers that are separated from the streets by parking lots

Sunnyvale has been developed with large land areas containing similar uses (such as single-family residential neighborhoods, industrial parks, etc.). For example, most residential areas are more than one-half mile away from commercial centers (an average ten minute walk).

The neighborhood street pattern, especially in the southern part of the City, is marked by wide, heavily traveled arterial streets (four to six lanes plus turning lanes) at one-mile intervals. Major east-west transportation corridors (such as El Camino Real and the CalTrain tracks) act as pedestrian barriers between residential areas in the south and job-sites in the north. Some pedestrian overpasses have been provided (one over Highway 101 and two over the railroad tracks), but shorter, more dangerous routes (e.g., directly over roadway overpasses or the railroad tracks) may tempt pedestrians, creating a potential safety hazard.

Traffic signals with pedestrian push-buttons and walk/don't walk indicators are located at all major intersections. Sidewalks have been provided in most residential and commercial areas and are now required in industrial areas, but are only installed with new development.

Only about 1.6% of all commute trips by Sunnyvale residents are made by walking. However, pedestrians walk for other purposes in addition to work commuting. People walk to stores and parks and often walk for recreation and exercise as well. In addition, there is a direct link between walking and transit - people must walk to access transit service.



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## Transit

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### *Santa Clara Valley Transportation Authority (VTA)*

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The VTA provides bus services in Sunnyvale and operates an extensive network of local, grid, and express bus routes. Bus service focuses on downtown Sunnyvale, the Moffett Industrial Park, and the El Camino Real corridor. Figure 2.24 shows the bus routes operated by VTA in 1995.

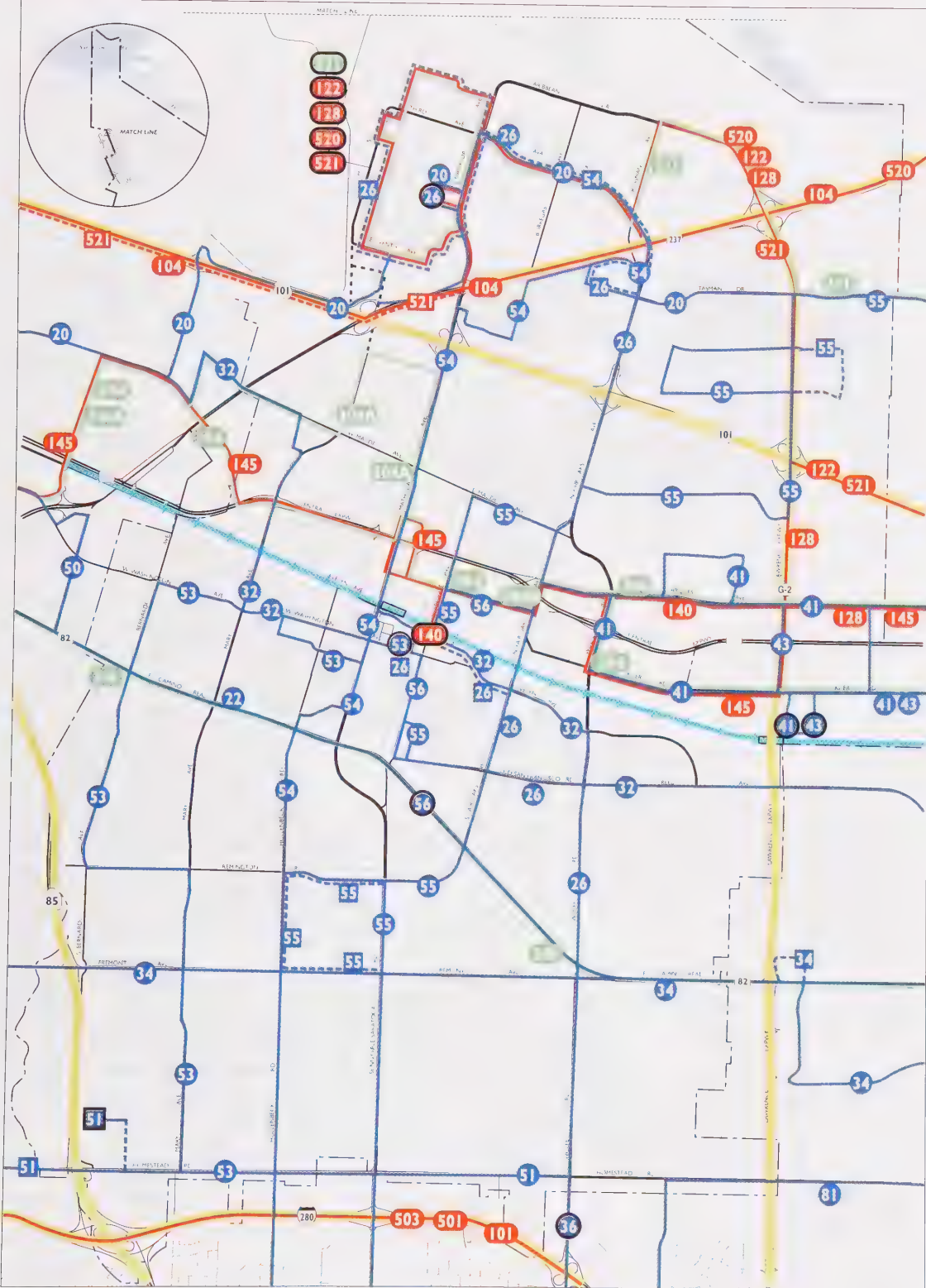
Transit service in Sunnyvale and the Santa Clara Valley has been expanded greatly since the 1970s, when the forebearer of the Santa Clara Valley Transportation Authority (VTA), the Santa Clara County Transit District, was formed. The transit service began as an agglomeration of three ailing local bus services. Initial service with 50 aged buses has grown to a modern, multi-faceted transit service featuring over 460 buses, an expanding light rail system, a commuter rail corridor (in partnership with San Mateo and San Francisco Counties), and an extensive network of quasi-public shuttle services. Currently, total ridership for all services surpasses 190,000 riders daily.

The VTA's Strategic Plan calls for a 30% increase in the bus fleet (to 600 buses) and a 25% increase in service hours in the next 10 years. It also includes significant improvements to VTA's Line 22 service to transform it into a rapid bus corridor.


In Sunnyvale, the VTA and other transit providers carry approximately 3% of daily commute trips. This modal share has stayed relatively steady since 1980. Transit accessibility during the peak commute periods has increased over the last decade so that almost all Sunnyvale residents have access to transit within  $\frac{1}{4}$  mile of their homes. Transit ridership has fallen and risen in the last ten years consistent with fluctuations in the local economy. If planned increases in service are funded, there is greater potential for increased ridership. However, past trends indicate that service increases have not increased the modal share of travel by transit.






Figure 2.24: Santa Clara Valley Transportation Authority Bus Routes Map






Source: Santa Clara Transportation Authority, July 1997


-  Limited Stop Route


 Route Terminus

 CalTrain Line
-  Local Route

 Express Route

 CalTrain Stations
-  Local Route Selected Trips

 Express Route Selected Trips

 Carpool Lane

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### *CalTrain*

The Peninsula Corridor Joint Powers Board (JPB), composed of members from Santa Clara, San Mateo, and San Francisco counties, operates CalTrain. CalTrain operates the Downtown Sunnyvale Station and Lawrence Station in Sunnyvale. CalTrain's frequencies, equipment, and physical plant are steadily being improved. Facilities developed to promote ridership at the two stations include rain shelters, bicycle lockers, and inexpensive all day parking for automobiles. VTA bus connections are also offered at CalTrain stations.

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### *Transit Usage*

Paralleling the trend county-wide, transit's share of the mode split has declined over the last seventeen years. In 1995, 2.5% of Sunnyvale residents used transit for commuting, as compared to 3.5% in 1980. However, transit ridership is increasing as the region's population grows and transit service is increased. CalTrain has realized a significant long-term increase in ridership from stations in Sunnyvale. In 1980, 1,660 CalTrain trips began or ended in Sunnyvale, as compared to 3,990 in 1997. VTA bus and light rail ridership increased by almost 20% between 1995 and 1997, consistent with overall increases in travel. Current 1997 data show that for the 382 bus stops in Sunnyvale, there are 9,134 boardings and 8,992 daily deboardings daily.

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### *Transit Network Forecast*

The Santa Clara Valley Transportation Plan (T2010) anticipates increasing the County bus fleet, which would allow for provision of new routes and increases in existing services. T2010 also anticipates establishing a comprehensive rail transit system in Santa Clara County to support urban densification. However, this rail expansion would be contingent upon funding for capital projects and a new permanent source of operating funds.

The Tasman West light rail transit (LRT) expansion is currently under construction and will be routed from Santa Clara through northern Sunnyvale and Mountain View, using the Tasman Drive, Java Drive, and Mathilda Avenue corridors to service Sunnyvale. This extension will create a light rail transit corridor stretching from

Mountain View and north Sunnyvale through northern Santa Clara, northern and central San Jose, and terminating in south San Jose. A total of six stations will be located in Sunnyvale. The LRT will provide direct service to Lockheed/Martin, the largest employer in the County. A transit center facilitating access to all transit modes will be constructed at 5th Street and Mathilda Avenues at the Lockheed/Martin site. Tasman West will be operational by 2000.

The long-term plan for Santa Clara County calls for creation of a comprehensive, Countywide light rail transit network, including service to downtown and south Sunnyvale. Major transit capital improvement projects are contingent on securing funding in a highly volatile transportation funding environment.

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### Paratransportation

Throughout the County, paratransit services are undergoing a transformation in response to the Americans with Disabilities Act (ADA). The ADA requires transit agencies to develop plans to provide paratransit access that is equivalent to the transit service offered to all riders. The plan must also include service coordination that addresses ADA service criteria. In response, the VTA has established a system combining accessible fixed-route buses and privately contracted, brokered paratransit. The brokerage contractor utilizes subcontractors to provide prescheduled taxis, group vans, and wheelchair-accessible vans.

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### *Physical Improvements for the Elderly and Mobility-Impaired*

The needs of elderly and mobility-impaired Sunnyvale citizens are addressed by the design and construction of roads and sidewalks, including handicapped ramps. The City has also installed several audible pedestrian signals. This program is consistent with the requirements of the ADA, and follows a city ADA Transition Plan.



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## Freight Transportation

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Sunnyvale's freight movement consists primarily of intercity trucking on freeways through the City. The City's SMaRT station and garbage collection service are the next most significant users of heavy vehicles on City streets. The City maintains designated truck routes for trucks over three tons, which is consistent with the California Vehicle Code. The City requires transportation permits and collects fees for oversized loads in accordance with state law.

While rail freight has declined with the decline of heavy industry, there are several businesses on the eastern side of the City that still use this mode. The Southern Pacific Transportation Company operates freight trains daily to serve Sunnyvale industry, using trackage rights on the CalTrain line.

Future public investment to accommodate freight may focus on regional streets and highways, in conjunction with the freight system network designated by the Metropolitan Transportation Commission (MTC). Rail freight services are likely to continue to decline as rail commuter services along the San Francisco-San Jose rail line take precedence.

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## Aviation

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There are no airports or other general use aviation facilities located within Sunnyvale. However, aviation is an intrinsic element of the City's transportation infrastructure, because of the impacts nearby aviation facilities have on the City.

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### *Moffett Federal Airfield*

Moffett Federal Airfield, the former Moffett Field Naval Air Station, is located within the sphere of influence of the City. The United States Navy turned the airfield over to the NASA/Ames Research Center in July 1994. Aviation uses of the airfield are limited to federal and federally-hosted operations. However, federal aerospace and defense reductions and budget cuts have created an uncertain situation.

NASA plans to keep the airfield available for Department of Defense flight operations, test flights, and federal shipping. NASA is also exploring other economic development opportunities related to



transportation, technology, and land use. (Moffett Federal Airfield is also discussed on page 50 in this chapter.)

There is a county-wide shortage of general aviation capacity. The County General Plan contains a policy to study general aviation system requirements, paying particular attention to Moffett Federal Airfield. However, one issue of particular concern to many residents in Sunnyvale, particularly northern neighborhoods, is the noise generated from the use of this facility in the past.

*San Jose International Airport*

San Jose International Airport is located approximately six miles east of Sunnyvale. The airport, operated by the City of San Jose, provides commercial air carrier and air cargo services, and hosts general aviation as well. The San Jose City Council adopted the San Jose International Airport Master Plan Update in June, 1997. The Airport Master Plan Update includes significant additions to airport facilities, including the lengthening and upgrading of one runway for use by commercial carriers and the addition of a third terminal. The forecasted changes over the planning period are summarized below:

**Figure 2.25: San Jose International Airport Facilities**

	1996	2010
Passengers	10 Million	17.6 Million
Runways:		
Total	3	3
Commercial	1	2
Terminals	2	3
Gates	31	49

Source: *San Jose International Airport Master Plan Update, Executive Summary, 1997.*

The Airport Master Plan Update also indicates that cargo service will increase, while airport use by small aircraft will decrease.

The number of passengers served by the San Jose International Airport is expected to nearly double in the next 15 years. Aircraft noise from this facility has been a concern for many northern Sunnyvale residents.

## Outside Influences

Outside agencies, from the federal government to neighboring jurisdictions, also exert influence on the City's transportation policies and have a role in implementing plans. Federal and state transportation programs, the Bay Area Clean Air Plan, and regional congestion management plans are examples of policies developed by other agencies (or cooperatively with local jurisdictions) to which the City must respond. Further, several transportation services and facilities within City limits are operated and maintained by other agencies, including state highways and county expressways, the transit system, and paratransit services (see Figure 2.26).

**Figure 2.26: Transportation Facilities Controlled or Affected by Outside Agencies**

Facility	Jurisdiction
Highway 101	State/CMA
Central Expressway	County/CMA
El Camino Real (Route 82)	State/CMA
Highway 237	State/CMA
Lawrence Expressway	County/CMA
Mathilda Avenue	City/CMA
Sunnyvale-Saratoga Road	City/CMA
Highway 85	State/CMA
Caribbean Drive	City/CMA
Peninsula rail service (freight and passenger)	Peninsula Corridor Joint Powers Board
Bus and Light Rail Transit	Santa Clara Valley Transportation Authority/CMA
Paratransit	Santa Clara Valley Transportation Authority/CMA
Various traffic signals at City limits	City/Neighboring cities
Lockheed/Martin roadway system and other roadway systems wholly on private property	Property owners

Because transportation infrastructure and equipment are so expensive, local jurisdictions are often not able to fund major transportation projects without financial assistance from state and federal agencies. These agencies have their own priorities for the kinds of transportation projects they prefer to fund. Although local jurisdictions have the opportunity to make a case for their own priorities, the competition for funds tends to influence transportation planning decisions toward the priorities of the funding sources, providing transportation planners with less flexibility to develop plans based solely on the needs and values of the community they

serve. In addition, when funds are received from outside sources, they come with regulations attached. These regulations add to the complexity of planning and administering transportation projects. However, since many transportation facilities and resources serve regional needs (rather than just local needs), these needs are appropriately addressed at the regional, state, and federal levels, where coordinated planning can take place.

Funding agencies are not the only outside agencies that influence local transportation planning. Many transportation modes have impacts on air and water quality and may contribute to noise levels as well. Since some modes have greater environmental impacts than others, the choices that local jurisdictions make to provide or promote certain transportation modes become environmental concerns. Over the last several decades, air and water pollution have become significant issues. Federal, state, and regional agencies have been created to find ways to decrease or eliminate pollution sources. Regulations developed by these agencies have a major impact on local transportation planning.

The City's role as a local transportation provider is one part of a complex web of providers, regulations, and plans. The following paragraphs present the realm of federal, state, and regional laws, and implementing agencies.

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### *Outside Regulation*

Recognition of the functional relationships among transportation, land use, and air quality led to legislation in the 1980s and 1990s. Examples of this legislation include the Federal Clean Air Act (as amended in 1990), the California Clean Air Act (CCAA, 1988), Congestion Management Program requirements in California (CMP, 1990), and the Intermodal Surface Transportation Efficiency Act (ISTEA, 1991). One goal often incorporated into legislation has been interjurisdictional cooperation in planning. The CMP and ISTEA seek to promote cooperative decision-making and provide local agencies with increased flexibility in the allocation of transportation improvement funds. These legislative actions also recognize the need to link land use planning and development with transportation planning. Transportation plans are required to be consistent with air quality policy and regulations as well. State and federal funding are tied to certain provisions of these laws.



While the City is legally mandated to comply with this legislation, certain tools are provided for carrying out the mandated policies. Regional decision-making bodies, which include representation from local jurisdictions, are empowered to create broad, balanced transportation and land use policies and programs. Regional transportation and land use monitoring systems provide ongoing data. Authority and funding for alternative transportation projects and programs are granted by regional agencies.

There are also potential penalties for not complying with some of this legislation. For example, the congestion management legislation requires local agencies to provide and execute deficiency plans when transportation levels of service decline to unacceptable levels and mitigation is not feasible. Deficiency plans must offset deficient levels of service, whether caused by local agency development decisions or by general regional growth. If a local agency does not comply with this requirement, a portion of state gas tax subventions can be withheld from the agency.

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### *Congestion Management Agencies*

The congestion management legislation required the formation of Congestion Management Agencies (CMAs) for every urbanized county in California. In Santa Clara County, the Santa Clara Valley Transportation Authority (VTA) has been designated as the CMA by all of the cities and the County of Santa Clara. As such, the VTA has considerable influence over transportation and land use planning conducted by local jurisdictions. The Congestion Management Program (CMP), a biennial document that sets performance standards for roadway, transit, and other transportation modes, is a conduit for state and federal transportation funds. Deficiency plans and Transportation Impact Analysis requirements can impose mitigations that may, in some cases, limit the development of land. Congestion management programs also contain requirements for promoting alternative transportation uses, consistent with air pollution control measures or regional clean air plans. The Congestion Management Agency is also preparing a Countywide Deficiency Plan (CDP) to address funding for transportation capital improvements. The CDP is discussed in Chapter 1.



The VTA has designated certain roadways throughout the County, including select Sunnyvale roadways, as part of the CMP Roadway System (Figure 2.27). This system includes all state highways, county expressways, and roadways that connect with the freeway and county expressway system and meet one of the following criteria: (1) state highway; (2) six-lane facility; or (3) nonresidential arterial with average daily traffic of 30,000 vehicles per day.

Regional growth and specific development projects are monitored to determine the level of traffic impact they may create within the Congestion Management Program system. Local jurisdictions must maintain the required levels of service (LOS) on local roadways incorporated into the CMP network, or mitigate deficiencies in the level of service according to CMP requirements.

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#### *CMP and Transit Governance*

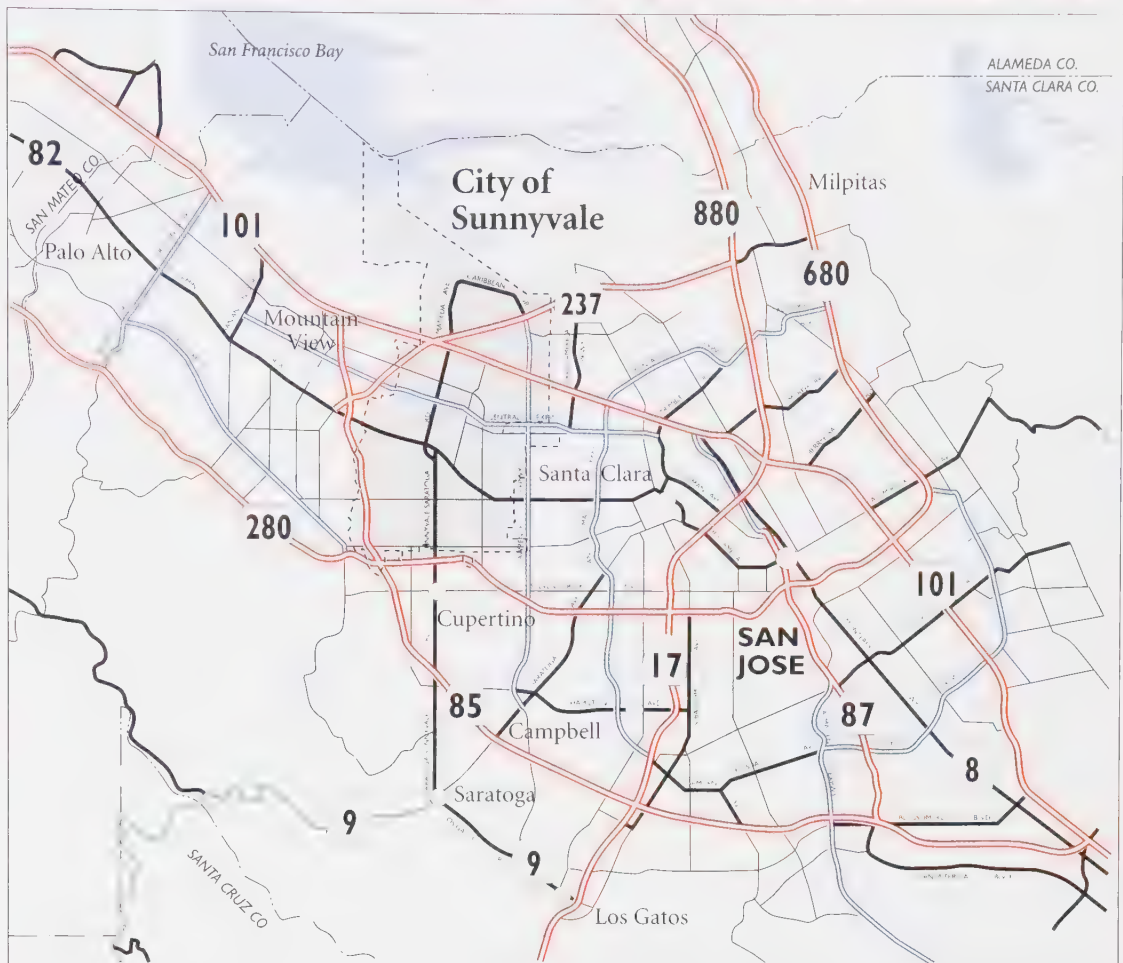
On January 1, 1995, the Santa Clara County Congestion Management Agency and the Santa Clara County Transit District merged to become the Santa Clara Valley Transportation Authority (VTA). This merger integrated transit service and congestion management, and permitted more direct participation by local agencies through their membership on the Board of Directors. The Board of Directors of the VTA is made up of representatives of Santa Clara County cities and the County Board of Supervisors. Therefore, cities including Sunnyvale do have a direct opportunity to influence the region's response to congestion management regulations.

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#### *The Peninsula Corridor Joint Powers Board (JPB)*

The JPB, composed of member transit agencies from Santa Clara, San Mateo, and San Francisco counties, operates CalTrain. The VTA contributes a formula share of the local funding to operate CalTrain between San Jose and San Francisco and 100% of the local funding for service between San Jose and Gilroy.

Figure 2.27: Congestion Management Program Roadway Network Map



Source: Santa Clara County Congestion Management Program, 1995



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### *Outside Funding*

An essential tool in implementing any plan is funding. In 1995, the City obtained funding for transportation from a number of sources, but primarily from a portion of the state gas tax returning to the City. The City received \$3.8 million from gas taxes in the fiscal year 1995-96. Expenditures from this funding source were limited to road construction and maintenance. This relatively stable source of funding accounted for the bulk of funding for road maintenance and minor capital projects in Sunnyvale.

Traditionally, state and federal governments have made additional funds available from gas taxes, bonds, or other sources for major capital improvements on a limited, discretionary basis. Competition for these funds is great, and projects must meet many specialized requirements to be eligible. In this manner federal and state policy goals are imposed on the City. These goals can include improving air quality, land use, transportation coordination, and travel safety. City policy must be flexible enough to respond to the priorities of the funding sources. Major funding from these sources is critically needed and anticipated in order to implement the City's transportation plans.

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### *Environmental Mitigation*

The California Environmental Quality Act (CEQA) requires that public agencies assess the potential for environmental impacts from projects either undertaken by the agency or supported by agency approval or assistance. Environmental reviews inform agency decision makers of the potential for environmental impacts, as measured against thresholds of significance. A city's general plan or other city policies often establishes standards that can be considered as thresholds of significance. If an impact exceeds a threshold, the impact is considered significant, and mitigation measures must be identified and addressed.

A mitigation measure is an action taken to decrease or eliminate a negative environmental impact caused by a project. The agency can then consider incorporating that mitigation into the project. CEQA provisions exert a strong influence on both land use and transportation planning activities.



For example, the environmental review of a proposed land development may indicate that the project will create a significant traffic increase, impacting the level of service (LOS) at certain intersections. The City has recognized that free-flowing traffic is an important community value and has expressed this as a LOS standard in the General Plan. If the environmental review indicates a violation of the City's LOS policy, decision makers are informed. They can then decide whether to require the developer to assist with improvements to transportation facilities, use City resources to mitigate the deficiency, or accept the deficiency as a cost outweighed by the benefits of the project.

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## Inside Influences

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### *Municipal Code*

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The Sunnyvale Municipal Code influences City transportation policy in a number of ways. City ordinances provide technical standards for roadways as well as landscaping requirements. Rules and regulations regarding work in public rights of way are also set forth in the Municipal Code. Traffic laws unique to Sunnyvale are contained in the Code, including on-street parking restrictions, truck routes, bicycle and pedestrian restrictions, and transportation demand management requirements. The Municipal Code provides tools critical to linking transportation actions to land development. Title 19 (the Zoning Code) includes the City's off-street automobile parking requirements and establishes the ability for the City to require the provision of certain facilities, such as driveways, channelization islands, bicycle parking, and bus duck-outs, before approving a development proposal.

In 1993, the City adopted the Air Quality Sub-Element to the General Plan to reduce air pollutant emissions from existing sources in Sunnyvale, as well as to reduce air pollutants in the future. Several policies and action statements in the Air Quality Sub-Element are intended to influence transportation policies and planning, as are policies and action statements from the Energy Sub-Element and other elements and sub-elements of the City's General Plan. A discussion of the relationship between the General Plan, the Capital Budget, and the Resources Allocation Plan is located in Chapter 1.



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## CONCLUSIONS

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As discussed in the beginning of this chapter, Sunnyvale's regional setting greatly impacts the City. Growth is expected to continue in Santa Clara County and the Bay Area as a whole. Sunnyvale shares resources with other communities in the region and is both benefited and constrained by its central location in Silicon Valley.

This chapter presents current land use and transportation conditions in the City. These conditions are a result of the City's past and present plans and policies in conjunction with the regional and local economic climate.

Regional demand for housing, transportation capacity, and jobs in Sunnyvale and surrounding communities will continue to put pressure on City-wide and neighborhood planning efforts. Balancing the regional pressures with City and neighborhood priorities is a primary concern addressed in the Land Use and Transportation Element.

The next chapter builds on the background information presented in this chapter, and explores how two activities—land use and transportation planning—can be coordinated in ways that are mutually beneficial and to the future of the City.

This chapter concludes by identifying potential policy questions related to the linkages between land use and transportation. Some of these policy questions are:

- ◆ Since population growth is expected to continue, and since the future population mix will likely be more ethnically diverse with a different age structure than today's population, will current residential land use regulations and policies be adequate to provide the kinds of housing that the coming population will need? If not, what changes should be made?

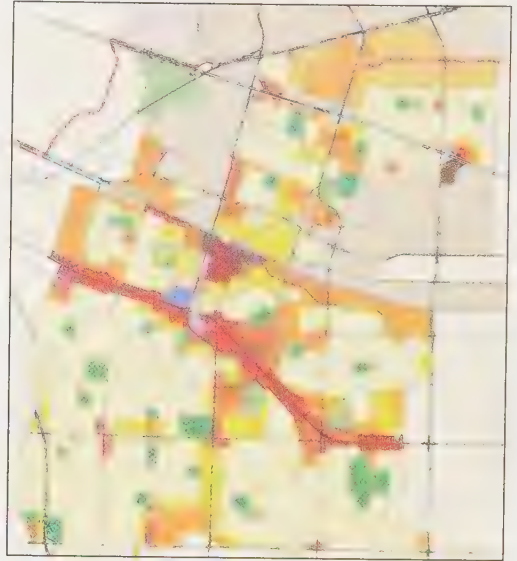
- ◆ Since Sunnyvale's strong job base has been a driving force behind the ongoing demand for more housing and transportation capacity, should the City take measures such as:
  - ◆ Impose more rigorous controls of the industrial floor area ratio (FAR) to limit further expansion of the job base, in order to generate a lower future transportation demand?
  - ◆ Take further steps to encourage more intense use of available residential land, in order to provide more housing for a strong job base and growing population?
  - ◆ Develop a strategy that involves a combination of these two actions?
- ◆ To encourage greater transit ridership, should the City actively promote more mixed use developments? If so, where should they be located? Do current development standards adequately address the special characteristics of this approach to land use?
- ◆ Should the City re-examine its industrial zones and land use standards, in order to consider whether uses such as churches and day care facilities are appropriate for industrial areas?
- ◆ What should the City do to maintain and enhance the identity of individual neighborhoods and the community as a whole?
- ◆ Should the City take further measures to enhance and encourage redevelopment in the downtown area?
- ◆ Should the City actively promote the development of commercial services convenient to residential and industrial areas? If so, what should the City's role be?

- ◆ Given forecasts that several Lawrence Expressway intersections as well as other roadway intersections in the City will achieve unacceptable levels of service prior to the year 2010, should the City take measures such as the following:
  - ◆ Should the City include further improvements within the capital budget program?
  - ◆ Should the City assertively implement alternative transportation strategies, such as transportation demand management programs?
  - ◆ Should the City develop land use strategies that reduce the traffic impact of land uses?
  - ◆ Should the City accept a lower level of service at some intersections?
  - ◆ Should the City develop a program that includes some combination of these strategies?
- ◆ Should the City take further measures to enhance and encourage pedestrian travel? If so, what might these measures be?
- ◆ What should the City do to encourage more transit commuting?
- ◆ What should the City do to encourage more bicycle commuting?

Finding good answers to these questions will require ingenuity. However, Sunnyvale has earned a reputation for creative problem solving. The following chapter examines the issues raised by these questions. Recommendations that evolve from the analyses then form the basis for the goals, policies, and action statements (Chapter 5) that define Sunnyvale's strategic land use and transportation plan for the future.

# Chapter 3

## Issues







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## CHAPTER 3 - ISSUES

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Chapter 3 focuses on the key policy issues raised in Chapter 2, and is divided into two major sections: “Land Use Issues” and “Transportation Issues.” Although grouped according to their main emphasis, all issues discussed here affect both land use and transportation.

The issues discussed in this chapter, along with the community conditions described in Chapter 2, are developed into the Major Facts, Findings, and Assumptions, as well as the Community Conditions Indicators found in Chapter 4.

Each analysis considers the overarching goals of community character, appropriate housing, efficient transportation, and a strong economy. The alternative approaches and recommendations for balancing these issues with the City’s fundamental goals, in order to meet Sunnyvale’s future challenges and aspirations, are the foundation for the formulation of the goals, policies, and action statements in Chapter 5.



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## LAND USE ISSUES

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A community's character is influenced and defined by a number of factors, including its transportation systems and its use of land. When asked to define a city's attributes, most people respond to issues relative to the way it looks, how it functions, and how that makes them feel about their city. This section focuses on land, neighborhood integrity, and the relationship between the economy and land use policies.

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### Neighborhood Integrity

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Sunnyvale is a fabric woven together by its neighborhoods. Thus, neighborhood integrity is the heart of community character. Sunnyvale has a variety of residential and industrial zones that have evolved into special, identifiable areas. Maintaining and enhancing these residential and industrial neighborhoods is a vital part of the vision described in this General Plan update. Issues that affect neighborhood integrity include the proximity of residential and nonresidential uses, the use of the Planned Development Combining District, minimum residential density policies, high density residential land uses, and the introduction of nonindustrial uses into industrial neighborhoods.

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#### *Proximity of Residential and Nonresidential Uses*

Sunnyvale land use policies and zoning practices encourage locating related although possibly dissimilar uses within each zoning district. The General Plan and Zoning Code provide considerable flexibility over the location of nontraditional and diverse land uses through the discretionary permitting processes. For example, a 1984 Land Use Sub-Element policy provided for a full range of residential densities to offer opportunities for a mix of dwelling and tenure type. The General Plan also allows residential uses in the Central Business, General Business, Neighborhood Business, Office, and Industrial areas.

In a residential zoning district, the City allows religious uses, child care centers, and certain recreational uses subject to review at a public hearing and approval of a use permit. Often these uses are compatible with and supportive of the residential district, provided there is appropriate site planning and certain conditions are met.

The proximity of residential to nonresidential uses is primarily the result of the development of residential uses abutting long-standing commercial uses throughout the City, and the introduction or replacement of nonresidential uses adjacent to residential neighborhoods. Also, during the transition of the Futures Industrial to Residential (ITR) sites, new residential uses have been established near industrial uses.

The most common impacts to residential uses result from proximity to commercial and industrial sites. When residential uses are adjacent to nonresidential uses, normal commercial and industrial activities can be a nuisance. These nuisances include operational noise, light and glare, conflicting hours of operation from late night establishments, and intermittent noise, such as that generated by loud speakers used at auto dealers.

The noise regulations were amended in 1995 to address some of these issues and to further minimize the impact of existing commercial and industrial uses on adjacent residences. In addition to defining different types of noises and noise levels, the revision clarifies daytime and nighttime hours and restricts certain activities like deliveries and landscape maintenance to daytime hours (7am-10pm). The provisions also set forth the language and criteria for determining intermittent noise nuisances.

Study of adjacent residential and nonresidential uses indicates that some conflicts are age related, since many commercial uses were established prior to adoption of review and permitting processes. One area of friction is along El Camino Real. Residential uses back up to commercial uses all along the 3.8 mile length of El Camino Real through Sunnyvale. Some uses conflict with the residential uses located adjacent to them, but have been important to the City's economic health.

Except where uses pre-date the City's codes, adjacent dissimilar land uses have typically been reviewed on a case-by-case basis. However, even with required operating and design standards for maximum noise levels, sound walls, and landscape buffer areas, conflicts do occasionally occur. The City seeks to balance the impact on its residential neighborhoods with the need to provide reasonable operating conditions for the business community now and in the future.



Sunnyvale is a community of varied and changing land uses, which is responding to local and regional economic influences on land use and transportation resources. These issues directly link to the City's overarching goals of community character, appropriate housing, efficient transportation, and a strong economy.

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#### *Planned Development Combining District*

Many communities utilize zoning overlays or "combining districts" with base zoning as part of project review and development, in order to provide some additional level of review and flexibility during the review process. Sunnyvale adopted the Planned Development (PD) Combining District as a separate zoning category in 1966. Within the last 15 years, the PD Combining District has been used extensively in Sunnyvale, and a total of 13% of Sunnyvale's net land area is zoned with the PD Combining District. This zoning tool is discussed in this section since it pertains to how new development is integrated into Sunnyvale's established residential neighborhoods.

The PD Combining District can be added to any of the zoning districts through enactment of an ordinance. A summary table illustrating the use of the PD Combining District by zone and acreage is located in Figure 3.1. (Refer to Appendix A for a description of the different zoning districts.)

**Figure 3.1: Sunnyvale Acreage by Zones, PD vs Non-PD**

<b>Zoning</b>	<b>Non-PD Acreage</b>	<b>PD Acreage</b>	<b>Percent of PD Acreage</b>
R1	930.57	2.25	0%
R0	2,239.40	36.69	2%
R1.5	0.00	24.96	100%
R1.7	0.00	11.90	100%
R2	217.49	197.98	48%
R3	409.36	399.73	49%
R4	105.95	186.82	64%
R5	0.00	1.83	100%
RMH	444.54	0.00	0%
CD	16.02	0.00	0%
C1	39.08	80.00	67%
C2	74.54	206.78	74%
C3	0.00	3.33	100%
C4	12.70	1.31	9%
MS	1,445.69	84.16	6%
M3	1,888.30	57.43	3%
O	20.22	19.74	49%
PF	2,245.42	0.00	0%
<b>TOTAL</b>	<b>10,089.28</b>	<b>1,314.91</b>	<b>13%</b>

Source: Sunnyvale Planning Division, Automated Land Information System, 1996.

The vast majority of the use and acreage of the PD Combining District is within the residential zoning districts. The highest number of acres is the R-3 (medium density residential), followed by R-2 (low/medium density) and R-4 (high density). Within the commercial zones, the C-2 (highway commercial) has the largest number of acres, largely because C-2 is along El Camino Real. The PD Combining District has rarely been added to industrial and manufacturing zones.

In order to build or establish a use in a PD Combining District, a special development permit is required. The special development permit is a discretionary planning permit that augments the underlying zoning district development standards that serve to delineate the scope, density, and scale of development. The intent of the PD Combining District is not to reduce requirements established by the basic underlying district regulations. The City may actually impose more restrictive requirements if deemed appropriate through the special development permit process.

A special development permit may enable deviations of lot area, lot width, setbacks, height, bulk, and parking space requirements, if appropriate. It does not apply to changes in density (i.e. dwelling units per acre). The General Plan and zoning densities, including the base zoning, remain unchanged. Each project is evaluated on its own merits, which provides opportunities for flexibility in site design and architectural treatment. Permitted uses of the combining district can result in some variation in the "built environment" through creative design and site planning. In addition to design flexibility, the City may restrict uses through the use of the PD to be compatible with existing neighborhoods.

For residential and commercial properties, the PD Combining District has been used to address various site constraints or opportunities in the following ways:

- ◆ To provide additional design flexibility to address site design
- ◆ To provide opportunities for a mixture of uses on a site
- ◆ To facilitate redevelopment on all or a portion of a commercial/retail site
- ◆ To provide a better interface between adjacent residential uses and the subject site
- ◆ To require additional review of some uses to protect residential neighborhoods
- ◆ To create a project that is more compatible with the adjacent neighborhood by requiring superior architectural design

Within our community, projects are either redevelopment or infill projects. The utilization of the PD Combining District is one of several methods used to address the challenges of these projects. Infill and redevelopment sites often remain undeveloped or underdeveloped due to their unique characteristics or because of less than desirable market conditions. To address these circumstances, the PD Combining District provides adaptability to address specific circumstances common to infill and redevelopment sites.

Some questions that can be asked regarding the PD Combining District are:

- ◆ Does a superior project result from the use of the PD Combining District?
- ◆ If so, at what cost and benefit?
- ◆ To what degree does the flexibility associated with the PD combining district compromise the intent of the underlying zoning?

The Planned Development Combining District is not a panacea. The use of the PD Combining District follows planning and design principles. Objective measurement of the effectiveness and utility of the district is difficult. Every project is unique and the use of the combining district has produced mixed results. However, maintaining this flexibility is one of the ways to address design and site challenges.

While the PD Combining District has been often used as a planning technique, significant changes or more stringent criteria could reduce its current flexibility in addressing unique sites. The use of the PD Combining District is intended to be consistent with both the General Plan and the City-wide Design Guidelines, and to help achieve goals of appropriate housing within the City.



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### *Minimum Residential Density Policies*

An examination of the density and design of infill residential often raises issues of neighborhood character and compatibility. The following summarizes City policy at the time of this update:

- ◆ Expansion of housing opportunities should occur throughout the City and be compatible with existing, surrounding neighborhoods.
- ◆ Innovative types of housing in existing residential zoning districts is encouraged.
- ◆ All new developments shall be built to at least 75% of permitted densities.

**Background:** Since the adoption of the minimum 75% residential density requirement in 1984, residential developments have largely conformed to this standard. Between 1991 and 1994, the average residential density was 79% of permitted density according to a sample of project data. In addition, the affordable housing density bonus has resulted in additional housing units.

The desirability of increasing the number of dwelling units per acre is influenced by land prices and market demand. The 1995/1996 market favored construction of single-family detached units, whereas the 1989/1990 market favored condominiums and apartments. The market is defined by changing community needs and economic factors. In largely built-out communities such as Sunnyvale, there are fewer opportunities to significantly modify the intensity of development. Establishing a minimum residential density is a local policy.

There are many possibilities for residential infill and redevelopment. Within the last eight years, most residential projects have been redevelopment of residential and industrial sites. Of all vacant parcels in Sunnyvale, approximately 22% (or 63 acres) are residentially zoned. These include the 17-acre 101/Lawrence site (currently under construction), the 18.8 acre “Corn Palace” site (on Lily Avenue adjacent to Lawrence Expressway), with the remaining sites of less than 2 acres each.

Several concerns have been raised regarding the current minimum residential density policies of the General Plan. The current policies support a variety of housing types to meet local, regional, and state housing goals. Over time, market demands for housing and opinions regarding desirable residential development densities have shifted. This discussion examines current community conditions, infill and redevelopment opportunities, and policy implications associated with maintaining or modifying the General Plan.

With fewer vacant sites and increased redevelopment activity, infill residential and commercial developments have become more challenging. These projects raise compatibility questions for adjacent residents and businesses. These challenges have often been addressed through the use of the Planned Development Combining District.

*The Use of the Planned Development Combining District:* The Planned Development (PD) Combining District has been a means of addressing the 75% residential density requirement. The Combining District maintains densities but provides flexibility in meeting the development standards (e.g., setbacks, height, building separation) of the zones. PD Combining District projects address specific site constraints (e.g., lot size, configuration, easements, and trees), promote compatible design solutions with existing development, and provide opportunities for mixed use developments.

*Policy Implications of Changing the 75% Minimum Density Policy:* Considering a building's lifespan, policy choices have a long-term impact on the structure and diversity of housing, the ratio of jobs to housing, employment, transportation, and community character. The original intent of the 75% minimum density requirement was to maximize housing opportunities within the residential zoning districts.

The current minimum density standard reinforces the linkage between the General Plan and zoning districts, since the 75% figure generally falls within the lower limits of the prescribed density ranges.

The housing intensity has a long-term impact on the structure, price, and diversity of housing within a community. The density policy, therefore, relates to the jobs/housing ratio of a community. These policies also are forces shaping overall community character.

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### *High Density Residential Land Uses*

Concerns have been expressed regarding the suitability of high density development, specifically as it relates to infill sites in existing neighborhoods. High density development can pose significant design and compatibility challenges. This section is a review of the R-4 and R-5 zoning districts, focusing on their utility and compatibility with surrounding neighborhoods. Existing policies on density, land use, and housing are also evaluated.

**Background:** The R-4 and R-5 Zoning Districts are the high density zoning districts in the City. They provide for residential development at densities of 28 to 45 dwelling units per acre (R-4) and 45 to 55 units per acre (R-5). These densities relate to the High and Very High Density Residential designations and are the maximum permitted by the General Plan. They include the 15% density bonus available for providing the required Below Market Rate (BMR) units. The General Plan has promoted the maintenance of a diversity in tenure, type, size, location, and cost-of-housing to permit a range of individual choice for all current residents and those expected to become City residents as a result of normal growth processes and employment opportunities.

Higher density housing is typically found along major roadways and near public transit. The General Plan Land Use and Transportation Map shows the location of the High and Very High Density Residential land use designations. This approach to land use:

- ◆ Protects lower density residential development from larger amounts of traffic
- ◆ Provides apartment dwellers, who are more transit dependent, with better access to public transit
- ◆ Provides enhanced site planning opportunities to protect outdoor areas from the impacts of transportation-related noise

The R-4 zoning district was part of the 1950 Zoning Code for Sunnyvale, but applied to only one block of the 6.1 square mile City (bounded by Mathilda, Olive, Taaffe, and El Camino Real). In 1960, the City was 14.1 square miles. The R-4 zoning was later applied to other properties, including those annexed between 1950 and 1963. Several properties were rezoned to R-4 when the comprehensive zoning map was adopted in 1965. Despite the earlier zoning designations, most of the R-4 sites developed at their permitted density in the 1970s and early 1980s. Since 1972, 14 properties have been rezoned for high density residential development, including implementation of part of the Southern Pacific Corridor Site Specific Plan, three Futures properties, one downtown site, and two sites that provided for minor expansion of an adjacent R-4 development. In 1978 the City adopted the Central Sunnyvale Policy Plan that resulted in a large amount of property being rezoned from R-4 to R-2 or R-0 to protect low density single-family homes in the vicinity. Since 1990 about 860 units have been built or are nearing completion on R-4 land.



The Southern Pacific Corridor Site Specific Plan at Evelyn and Sunnyvale Avenue was amended in November 1994 to permit a mixture of uses including office, retail in conjunction with residential, or residential development at an R-4 density (36 dwelling units per acre before density bonuses), which is comparable to the Downtown Specific Plan density in the immediate vicinity.

The R-5 zoning district existed when the 1963 Uniform Zoning code was adopted at a density similar to R-4. The density was changed to one unit per 950 square feet (45 units per acre) in 1982. Single room occupancy facilities (SROs) are the only major addition to uses in this zone. There are two Specific Plans, 101/Lawrence and Downtown Specific Plan, that permit residential development at an R-5 density.

Figure 3.2 provides information on the High Density and Very High Density Residential General Plan designations.

**Figure 3.2: High and Very High Density Residential Land Uses**

Zoning	Acres	Percent of City-wide residentially zoned property	Units (existing, approved, or permitted by Specific Plan)	Percent of build out (61,361 dwelling units)
All Residential	5180	100%	51,911	85%
High Density	295	5.7%	7,567	12%
Very High Density	41	0.8%	2,013	3%
TOTAL (High and Very High)	336	6.5%	9,580	15%

Source: Planning Division, Automated Land Information System, 1996.

The General Plan was amended in 1989 to create the Very High Density residential land use category (45 to 65 dwelling units per acre). This category is supported by both the 101/Lawrence Special Plan and the R-5 zoning. Today only one site is zoned R-5: the 1.59 acre R-5 property at Weddell and Borregas has been approved for a 193 unit Single Room Occupancy (SRO) facility.

*Patterns of Development:* Among the R-4 sites, 17.4 acres (6%) have been developed with nonresidential uses, such as offices (particularly medical offices), that are not likely to redevelop in the near-term. Some of these parcels include commercial uses. A large number of the R-4 properties (about 120 parcels) are under 6,500 square feet (currently the minimum size for more than one unit), are developed with 1 to 3 dwelling units, and do not meet the minimum lot requirements without additional assembly of lots. Additional redevelopment and development opportunities do remain in these zones, but there are only a few properties that may result in a discernible increase in the number of housing units.

*Policy Implications of Modifying R-4 and R-5:* The R-4 and R-5 zoning districts support the General Plan categories of High Density Residential (28 to 45 dwelling units per acre) and Very High Density Residential (46 to 55 dwelling units per acre). A concern is that development at these higher densities will negatively impact neighborhoods and substantively change the character of the community.

The R-4 and R-5 zoning districts (in conjunction with other housing programs such as the 75% minimum density, the requirement to provide Below Market Rate housing, and the housing mitigation policy for higher intensity industrial developments) have contributed toward the State of California certification of Sunnyvale's Housing and Community Revitalization Sub-Element. Some community members believe that Sunnyvale has satisfied the full range of housing opportunities and that further use of the R-4 and R-5 zoning categories may not be warranted.

Housing remains a key component of community character and relates to other goals as well, including efficient transportation and a strong economy. A variety of housing types and intensities provides a mixture of housing choices to serve the community. The design and implementation of new or redevelopment projects should emphasize compatibility with the surrounding neighborhoods in order to promote elements of balance and design compatibility.

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### *Nonindustrial Uses in Industrial Neighborhoods*

The City's zoning allows some land uses that are considered more restrictive (sensitive) to be located in less restrictive, industrially-zoned districts. An example is when residential development or religious facilities are allowed to locate within an industrial zoning district.

The juxtaposition of dissimilar land uses can result in conflicts, although the uses may be consistent with General Plan policies and potential impacts are mitigated through restrictions on operating standards. Under current zoning regulations, the City tries to create or maintain a balance between the needs of residents and a healthy, diversified economy. As a result, Sunnyvale has experienced some conflicts from the introduction of nontraditional uses into industrial zones.

Approximately 25% of the City's land area is zoned for industry. The City has two industrial zoning districts: M-S (Industrial Service) and M-3 (Heavy Industrial). Both allow a wide range of manufacturing, office, and warehouse uses as a matter of right, and a broad range of nonindustrial uses with approval of a discretionary permit.

Over the last 20 to 30 years, there has been a gradual increase in non-traditional uses within these industrial and manufacturing districts. Uses such as restaurants, hotels, banks, child care, and retail have located in these areas in support of the industrial uses. Religious, cultural, and educational institutions have typically had no direct connection to the industrial population, but sought the low cost land and affordable leases that were available in Sunnyvale's industrial areas during the early 1990s.

The City has employed use permit and design permit processes to review the appropriateness of these nontraditional uses on a case-by-case basis. From an operational standpoint, these uses typically have peak operating periods that do not conflict with adjacent industrial and manufacturing uses, and can provide convenient support services to industry.

The overall effect of nontraditional uses on the City's industrial businesses to operate unencumbered by this encroachment is an issue. Nontraditional uses can undermine the basic purpose of these industrial districts by creating an environment that becomes overly sensitive to the continued use of fundamental industrial



processes, including the use of hazardous materials. The location of child care and religious institutions, in particular, has become controversial due to potential risks associated with locating sensitive populations near such materials and processes.

If the City wants to maintain its status as a desirable location for industry, legitimate concerns need to be resolved regarding the location of non-traditional uses in industrial areas. Among the concerns that have been raised are:

- ◆ Industry's ability to expand or change the use of hazardous industrial materials that may pose some level of risk to newly introduced sensitive populations (i.e.: child care centers and churches)
- ◆ Regulatory requirements that may be imposed on industry after-the-fact when a nontraditional use is established in the vicinity
- ◆ Limiting the potential to obtain tenants for sites in industrial zones because of liability questions resulting from being located near nontraditional (sensitive) uses
- ◆ Maintaining industrial property values and viability
- ◆ Reducing the ability to obtain insurance or having insurance canceled because of the proximity of nontraditional uses

*Child Care in Industrial Areas:* At the time this element was written, the Council had taken two actions to address child care issues in industrial areas. In 1992, the Council considered a legislative issue that reviewed planning and zoning policies to identify approaches to streamline or facilitate the development of child care facilities. As a result, several changes were made to the Zoning Code making it easier to locate child care centers by allowing smaller facilities (up to 30 children) by right in the C-1 (neighborhood commercial) and P-F (Public Facility) zoning districts, and thereby providing opportunities for siting in areas other than primarily the industrial areas.

In 1994, a study focused on the siting of child care facilities in industrial areas. As a result, the City recognized the potential effects of child care near industry, but chose to continue to review child care proposals on a case-by-case



basis. Several concerns were addressed, such as additional noticing of surrounding property owners, disclosure requirements to parents, increased on-site safety measures, and distance separation requirements from hazardous materials.

Addressing Alternative Uses in Industrial Areas: Nonindustrial supporting services, such as restaurants, hotels, health clubs, banks, and retail uses are typically allowed in industrial areas subject to a public hearing and permit approval. These uses have been less controversial when nontraditional and industrial support uses are located on the periphery of industrial zones, particularly along arterial street corridors.

In 1993, the City adopted the Futures Study, a major land use plan that uses the principles of inclusionary zoning to allow housing within industrial areas. The study executed policies affecting the housing supply. The purpose was to select appropriate sites for additional housing opportunities and to locate employees near jobs in an effort to reduce traffic congestion area-wide. The Futures Sites were selected for future conversion to low-medium and medium density residential uses.

The Futures Sites have already been studied and planned for transition to residential. An approach to providing alternative locations for other nontraditional uses would be to specifically consider the use of these Futures Sites. As a way of minimizing the impact of these uses on the City's important industrial base, nontraditional development such as retail, religious institutions, cultural centers, and/or child care could be specifically encouraged to locate at Futures Sites.

Since the Futures Study was adopted in 1993 and until 1997, there has not been any new residential development on a Futures Site. This has primarily been a result of not having sufficient land area aggregated under one ownership to support residential development. A policy to expand the use of Futures Sites could have the following implications:

- ◆ Transition/redevelopment of these areas may be accelerated.
- ◆ The City may not gain as many housing units as originally planned to support its industrial employment base.
- ◆ The impact of nontraditional uses encroaching into the core of the industrial areas may be reduced or confined.
- ◆ More industrial areas may be unencumbered by nontraditional uses and be able to continue with fundamental research and manufacturing processes without liability issues associated with adjacent sensitive and dissimilar uses.

*Policy Considerations for Industrial Areas:* The 1984 Land Use Sub-Element called for the provision of a variety of industrial uses and supporting commercial uses. Due to the presence of hazardous materials and processes in industrial uses, the encroachment of nontraditional uses into industrial areas has become an issue. Some businesses have suggested that these uses pose liability issues that erode the basic ability of industrial businesses to operate. These competing needs and land uses are a challenge for the City to address. With guidance from the General Plan and the utilization of the public hearing process for some discretionary permits, many potential issues are addressed through the conditions of approval.

The introduction of nontraditional uses into manufacturing and industrial areas has increased environmental review, including the preparation of environmental impact reports to fully ascertain the environmental impacts of new or nontraditional land uses. While these approaches add to the environmental review process, they may also serve as a deterrent to nontraditional uses in these designated areas.

The introduction of nontraditional uses into manufacturing and industrial areas is one of many examples of changes and modifications to land uses over time. Many of these examples reflect changes in the social needs of the community, such as the location of child care in close proximity to industrial/manufacturing employment sites. This evolution of land usage reflects a combination of changing social and economic conditions that comprise community character.

The next section introduces many issues linking land use policies and practices with the local and regional economic cycles. A more vigorous economy places increased demand on land resources and uses. Intensification of land uses often produces more jobs and an increased demand for housing. To varying degrees, the combination of jobs and housing also introduces additional traffic in the transportation corridors.

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## The Economy and Land Use Policies

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The state of a regional economy can affect land use, and land use can affect the state of a local economy. Sunnyvale has certainly felt these relationships. The growth of Silicon Valley and its various economic cycles have greatly influenced the character of Sunnyvale over the last 50 years. In this section, several relationships between the economy and land use are explored. The issues of jobs and housing and development standards in industrial zoning districts are discussed on the following pages.

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### *Jobs and Housing*

The distances separating jobs from housing in the Bay Area contributes to worsening traffic conditions on regional streets, longer commute times, and air pollution. The City of Sunnyvale has had a long standing policy to provide both housing opportunities and a solid employment base. The 1957 General Plan noted the importance of providing employment for the workers who would live in Sunnyvale. The industrial sector took hold in the 1950s, and employment skyrocketed. In the 1980s the focus



shifted toward assuring that housing was available for the people who worked in Sunnyvale.

The concept of seeking to balance expanding employment centers and residential growth is a regional issue, but it is addressed by local policy makers. Varied land uses in a city contribute to the long-term economic health of the community. The relative measure of the jobs-to-housing ratio is an indicator of land use and housing policies, economic development strategies, and transportation plans. All of these factors affect the quality and character of the community.

The Association of Bay Area Governments (ABAG) developed the goal of a jobs/housing ratio of 1.6 (considered balanced based on the assumption of more than one worker per household). ABAG prepares estimates of existing and future jobs/housing ratios for each community in the Bay Area. Comparisons of the ratios are often inconclusive due to fluctuations in housing and jobs. The number of jobs is particularly sensitive to the economy. Under recessionary conditions the jobs/housing balance is closer than during periods of recovery or strength. Job mobility is another critical factor that is not fully captured in the jobs/housing ratio.

Data suggests that the City of Sunnyvale has a better ratio than other communities. Due to zoning and the history of residential development, the City has developed a significant share of regional housing that consists of a higher proportion of multifamily units than most communities and a commitment to the permanency of mobile home communities. In order to support a variety of industrial land uses and jobs, the business community has advocated a range of housing options and prices. The availability of housing enhances economic growth, supports businesses, reduces commuting distances, and gives employees some opportunities to both work and live in a community.

**Jobs:** One factor in the ratio is jobs. In largely built-out communities, fluctuations in the number of jobs have a more immediate impact on the ratio than changes in the number of dwelling units. Sunnyvale has greater potential growth in jobs than in the development of residential dwelling units.



Housing: Housing is the second half of the ratio. Over the past decade, various types of housing units have been developed, including a significant number of single-family detached units in response to strong market demand. Sunnyvale has pursued several policies to encourage new housing developments. Small lot/small home sites have been developed in Sunnyvale since 1968. From 1984 to 1994, about 7,400 residential units of varying types were built. Of the total housing units approximately 53% are single-family detached, including mobile homes, and 45% are multifamily housing units. At the time of this General Plan update, there are opportunities for residential development of about 10,000 units.

Within the next decade and beyond, housing will be infill and the redevelopment of deteriorated or underdeveloped properties, including the Futures Sites. Sunnyvale's policies require that infill developments should be attractive and compatible with existing neighborhoods, demonstrate sound urban design principles, and promote site amenities (e.g., special design features and enhanced landscaping). According to 1996 ABAG estimates the number of Sunnyvale households is expected to increase by 21% between 1990 and 2015. This amount of growth can only be achieved with the current land use designations. However, to attain the ABAG goal of a 1.6 jobs/housing ratio, Sunnyvale would need to add almost 45,000 housing units for a total of 95,000 units.

Proximity: The City has used several techniques to encourage the close proximity of jobs to available housing:

- ◆ Limiting the employment concentration and intensity of industrial development (through jobs/acre in 1980, and later by using a 35% floor area ratio [FAR])
- ◆ Expanding the housing supply by rezoning properties from industrial to residential
- ◆ Requiring a 75% minimum housing density
- ◆ Offering density bonuses for providing affordable housing units

- ◆ Establishing a housing mitigation policy associated with development that exceeds the 35% FAR in industrial and manufacturing zones

These policies were designed to provide housing options while maintaining opportunities for the business sector. The Futures Study (1993) examined the reallocation and location of the intensity of jobs and housing. An outcome of the Futures Study was to rezone certain industrial properties for transition to residential uses, and to increase the allowable FARs in four areas of the City in order to target the location of jobs within the community.

Alternatives and Policy Implications: Since any jobs/housing calculation fluctuates over time and with economic cycles, the City has various approaches to the concept of balance including: putting emphasis on jobs over housing, emphasizing housing over jobs, or treating jobs and housing equally. Each of these approaches has policy and service implications for the City.

Policies regarding the number of jobs can be addressed more directly through a review of development standards (including 35% FAR) in industrial areas. Policies regarding the number of housing units can be addressed through the review of the 75% minimum density policy.

The jobs/housing ratio is an indirect result or relative measure of the development standards in industrial areas and minimum residential density policies discussed earlier in this chapter.

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### *Development Standards in Industrial Zoning Districts*

Development standards are part of the zoning regulations for each zoning district. The purpose of development standards is to realize appropriate site planning, which promotes quality building, site design functionality, and uses of land that achieve General Plan policies. Development standards promote good site design, the provision of adequate public facilities, appropriate architectural design, and community compatibility. The enactment of development standards in the zoning code is one method that the City uses to "protect and promote the public health, safety, peace, comfort and general welfare." (SMC 19.02.030)

Development standards form the basis for evaluation and implementation of development. Development standards normally include building height limits, building setbacks from property lines, landscaping requirements, parking requirements, and lot coverage and density limits such as floor area ratios (FARs). Most of the standards assure reasonable amenities on the site (parking and landscaping) and indirectly affect the total amount of development that occurs on the site. The FAR is the most significant development standard affecting the intensity of potential industrial development in Sunnyvale.

**Background:** Between 1975 to 1995 there were a few modifications to the development standards in industrial zones. None of the changes were the result of significant policy concerns, but instead were refinements to existing standards.

In 1986 to simplify the former standard expressed as jobs per acre of development, the 35% FAR standard was adopted. The FAR standards were part of the City's efforts to adjust the jobs and housing ratio. A FAR compares the square feet of building development with the total land area of a site. It is a crucial element of the City's system of effective land use and transportation planning. The FAR defines the allowable square footage that subsequently affects the number of automobile trips generated.

**FARs in Other Communities:** A survey of other communities notes a wide range of FARs in manufacturing and industrial zones. Figure 3.3 summarizes FAR standards (or other intensity controls) in other Santa Clara County communities. Sunnyvale's FAR standard is similar to Cupertino, Mountain View, and north San Jose. The FARs in other communities range from 33-75%; the majority are within the 30-40% range. Recently the trend is toward greater FAR allowance.

**Figure 3.3: Comparison of FARs by City (1996)**

City	Zone	FAR
Cupertino	All Industrial/Mfg.	33%
Palo Alto	GM (General Mfg.)	50%
	LM (Limited Mfg./Research Park)	40%
Mountain View	General Industrial/R&D	35%
	Warehouse	40%
	Increase allowed if within 2,000 ft. of transit	50%
San Jose	All but North San Jose	35%
	North San Jose, if within 2,000 ft. of transit stop	40%
Santa Clara	Planned Industrial District	50% lot coverage
	Light Industrial	75% lot coverage
	Heavy Industrial	Restricted by setback & parking requirements
Sunnyvale*	Service and General Industrial	35%
	Warehouse	50%

\*The Futures Industrial intensification sites allow FARs of 50%, 70%, and 100%.

**FARs in Sunnyvale:** Almost 93% of the industrial parcels in the City have been developed, but not all have been developed to their maximum potential. The resulting FARs range from 0.16% to 143% (note only 6 parcels are greater than 100%). Figure 3.4 shows the characteristics of development and average FARs for Sunnyvale industrial properties.



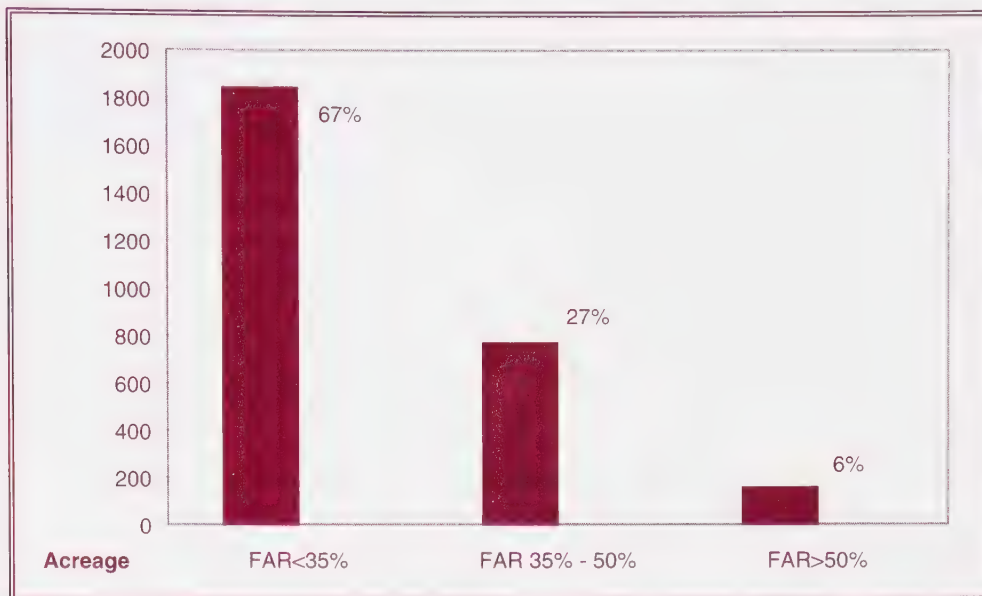
**Figure 3.4: Characteristics of Development in Sunnyvale Industrial Zoning Districts (1996)**

	Number of Parcels	Total Acres	Average FAR
All parcels	923	2,753	29%
All parcels currently developed with industrial uses*	684	2,268	34%
Parcels with less than 35% FAR	536	1,830	19%
Parcels with less than 35% FAR, currently developed with industrial uses*	347	1,410	24%
Parcels with greater than 35% FAR, currently developed with industrial uses*	337	858	44%
Parcels developed with nonindustrial uses	239	484	N/A

*\*Certain uses are not considered industrial and do not have FAR limits including: housing, hotels/motels, retail, restaurant, private streets, public utilities (e.g., flood control channels, well sites, etc.)*

Approximately 58% of the parcels zoned M-S (Industrial Service) and M-3 (Heavy Industrial) are developed with less than a 35% FAR. The average FAR for these parcels is 19%; however, discounting parcels developed with uses for which FARs are not controlled, such as restaurant or hotel, the average FAR is 28%.

If all of the industrial parcels now developed at less than 35% FAR were to be developed at the 35% FAR level, a total of approximately 12.8 million additional square feet of building area would be added, resulting in up to 12,500 to 29,000 additional peak hour trips. Sixty-five parcels or 1.3% of the M-S or M-3 zones have 50% or greater FARs. Figure 3.5 is a summary chart of FARs in Sunnyvale.

**Figure 3.5: Industrial Development FAR Ranges in Sunnyvale**

Source: Planning Division, Automated Land Information System, 1996.

In the 1993 Futures Study, several industrial parcels located throughout the City were rezoned to allow residential development or a mix of residential, commercial, and industrial development. In addition, some of the Futures Study parcels were given higher FARs. The purpose for rezoning some sites and allowing higher FARs on others was to provide more housing within the City and to provide the opportunity for a more varied job-producing sector in areas that could support transit.

In industrial zones, FARs of 35% are permitted for industrial uses and offices, and 50% for warehouses before additional review is required. Applicants can apply to exceed the 35% FAR standard through the use permit process. The use permit is a higher level of review, including the imposition of additional mitigation measures, including housing mitigation fees. If the City was to reconsider its FAR standards, it would be necessary to evaluate the environmental impacts, including the potential traffic impacts of such a policy.

There are land use and transportation policy implications to any changes to the current FAR standards within the City. As noted the City's current FAR standards are at or below that of several neighboring communities. The density of development directly influences traffic generation and needed traffic mitigations, potential job growth, and the demand for housing.

Housing remains a key component of community character and relates to other goals as well, including efficient transportation and a strong economy. A variety of housing choices and intensities provides a mixture of housing to better serve the community. The design and implementation of new or redevelopment projects should emphasize congruity with the surrounding neighborhoods in order to promote elements of balance and design compatibility.

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## TRANSPORTATION ISSUES

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Most people equate the term “transportation” with traffic. Traffic affects each of us on a day-to-day basis. The increasing number of single occupancy vehicles traveling ever greater distances is at the forefront of most of our impressions regarding transportation. However, transportation is a broader subject and includes travel modes, neighborhood traffic, carrying capacity limitations and implications, funding, and overall land use impacts.

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### Transportation Modes

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This section examines a range of issues, such as the mode choices made by Sunnyvale residents and workers, the implications on transportation strategy, transportation systems management or transportation demand management approaches, and bicycle, pedestrian, and transit modes. Current and future demands on the transportation system hinge on the type of transportation options individuals have and the choices they make. The transportation system is a critical determinant of the utilization of land in the City.

As discussed in Chapter 2, most travel within Sunnyvale is made by private automobile. An extensive roadway system has been constructed to accommodate automobile travel. The approximate mode split of both Sunnyvale’s residents and workers in 1990 is:

◆ Drove Alone	80%
◆ Carpooled	15%
◆ Bicycled/Walked	3%
◆ Took Transit	3%

The City has some significant transportation policy decisions to make. Focusing on community transportation conditions as they relate to transportation modes may give a sense of how effective strategies that are focused on a particular mode might be.



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### *Automobile Mode*

The street system in Sunnyvale has been almost fully built-out. Therefore, future improvements to the transportation system will have to focus on adding capacity to existing facilities or making operational improvements to optimize system operation.

Several methods are available for addressing roadway capacity issues. Capital improvements, Traffic Systems Management, and Transportation Demand Management are briefly considered in this discussion in terms of their effectiveness in supporting the automobile mode in Sunnyvale.

*Capital Improvement Effectiveness:* A substantial capital improvement program is forecast as necessary to support the traffic generation anticipated for the year 2010.

Creating new roadway capacity in an urbanized area with a saturated traffic system is only marginally beneficial. In such environments, any new capacity created represents a diminishing percentage of the total existing capacity. Initially, the capacity improvement may seem effective, but the improvements to congestion are frequently short-lived. This is because driver behavior changes.

A classic example of behavior modification occurred with the opening of Highway 85 in western Santa Clara County. Drivers were unaccustomed to the new capacity, so congestion eased and cars moved faster in the short term. Over the ensuing year, however, both the new freeway and many of the old locations became congested again. Drivers adjusted their travel schedules in response to the decreased travel time that the new capacity provided. A new equilibrium was established that balanced travel time and congestion. The true benefit to the average driver was not decreased congestion, but rather a marginal reduction in travel time, and possibly a more direct route. It is not uncommon for roadway capacity improvements to be minimized over time since driver behavior changes and congestion reappear on a periodic and then regular basis.

In reality, capital improvements are a short-term fix for congestion unless they provide significant new capacity, which is virtually impossible in a developed city. The potential benefits of additional capacity are also reduced if development is allowed at greater intensities than what could have occurred prior to the improvement. Consequently, if long-term improvement is to be achieved, capacity improvements must be accompanied by controlling development intensities. Despite these drawbacks, capital improvements tend to be popular and do provide some quantifiable mitigation for increasing congestion.

*Transportation Systems Management Effectiveness:* Traffic signal operation refinements and travel and turn lane modifications are common TSM actions. Providing for more efficient, alternative forms of transportation is another TSM strategy.

The City can take actions that provide both passive and active choices for travelers. Modifying a traffic signal system is a passive action that improves the efficiency of the route for most travelers. Alternative transportation, on the other hand, requires a traveler to actively participate (e.g., shift travel modes) for the benefit to be realized. This participation requirement or behavior change has implications on the effectiveness of the various TSM actions and the approach taken to implement actions.

TSM policies and programs usually require City services similar to those required for standard capital projects. As stated previously, TSM capital projects typically have a smaller cost outlay. Ongoing maintenance costs vary by type of project, but on average are comparable. However, cost effectiveness is realized only if significant participation occurs, and benefits are often realized indirectly through reduced road maintenance costs, benefits to the local economy and tax base from improved traffic flow, and environmental benefits from pollution reduction. But because the City has already used most TSM strategies, significant additional improvement can only occur if the City employs drastic TSM measures such as prohibiting left turns at major intersections.

*Transportation Demand Management Effectiveness:* Examples of Travel Demand Management (TDM) actions are flextime, ridesharing, parking pricing, and telecommuting. Demand

management is a low cost approach for municipal government but can result in costs being shifted to other sectors. For example, an ordinance requiring businesses to provide car-pooling services shifts the cost of a travel improvement to the private sector.

Effective, broad-scale implementation of TDM can be challenging. Incentive programs such as ride matching services rely on travelers to participate. Their effect on improving travel times is marginal unless large numbers of travelers participate. Legislated actions such as mandated TDM programs are often unpopular. One strategy is to require developers to incorporate TDM measures into development projects. However, positive effects are realized only over long periods of time, and there are equity and economic development issues associated with implementing such regulations. Both TDM and TSM actions have been implemented widely despite these constraints.

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### *Bicycle and Pedestrian Modes*

Bicycle planning efforts to date have demonstrated that significant barriers exist to constructing a comprehensive bikeway network. Sunnyvale's road and bikeway network matured prior to 1981. The majority of the City's major roads were developed to standards that preclude bikeway facilities. The City also allows on-street parking on most streets. As a result, the City has a poorly developed bikeway infrastructure, and opportunities to expand the system are constrained. Compared to a roadway system composed of over 93 miles of arterial and collector streets, Sunnyvale has a total of 22.2 miles of bikeways. Bikeway planning has focused on making minor operational improvements and studying new bikeways as a part of major roadway widening projects.

Pedestrians face similar conditions. Sunnyvale's neighborhood street patterns do not lend themselves to journey-to-work or other nonrecreational walking. Segregated land uses and large building setbacks from the sidewalk add to this environment. Most industrial areas were developed without sidewalks, and large scale retrofitting would require a massive capital outlay. Currently, sidewalks are being installed piecemeal as new development and change of use occur.



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*Transit Modes*

When communities look to their transportation future, there is almost always an interest in providing transit options. Public transit is viewed as a desirable situation for Sunnyvale's future, but it is not at all clear that public transit will be able to serve the projected future travel demand.

Sunnyvale and most of the South Bay is ill-suited for the effective use of public transit. The City's land uses are generally low to medium density with many uses dispersed geographically. The dispersion of jobs and housing makes it unlikely that the origins and destinations could be matched by transit routes with travel times competitive with the automobile. The vast majority of travelers in Sunnyvale use a personal vehicle. It is unlikely that these people could be attracted to transit unless transit was able to offer a significant advantage in terms of travel time or cost.

Several years ago, the City undertook a feasibility study of operating shuttle service between the major employment areas in north Sunnyvale and the downtown area. After extensive surveys and interviews, the study found that there was almost no demand for this type of service. Employees simply had a faster and more convenient alternative available in their private automobiles.

Additionally, any transit services considered for operation solely within Sunnyvale would be extremely disadvantaged by the fact that only a limited amount of travel in Sunnyvale begins and ends in Sunnyvale. As discussed in Chapter 2, 68% of Sunnyvale (85,000) residents travel to other cities for work, and over 80% of employees in Sunnyvale arrive from residences in other cities (Figure 3.6). For a transit alternative to be successful, it needs to be regional rather than intra-city.



**Figure 3.6: Work Travel to and from Sunnyvale**

	<b>Total</b>	<b>In/Out Commuting</b>
Sunnyvale Jobs	105,000	85,000 (81%)
Employed Sunnyvale Residents	80,000	54,400 (68%)
Total In/Out Commuting (commutes through Sunnyvale not included)		139,400

Source: U.S. Census, 1990

Even with its intercity system and service, the county transit system has limited success in serving the County's travel demand. Most workers and residents in Santa Clara County have automobiles that provide a more convenient travel alternative. The county transit system primarily serves the travel needs of "captive" riders (those without access to an automobile) and other segments of the traveling public unwilling or unable to drive for other reasons.

Consequently, the transit alternative is similar to the TDM alternative in that its likelihood for success, given current conditions, is grounded in government or employer actions to increase use of transit. Mandating travel behavior can be extremely unpopular. However, as previously discussed in Chapter 2, the VTA is working to increase the bus fleet and service hours by 2006, to begin operating the Tasman West LRT extension by 2000, and to implement a bus/rail integration plan for the transit system. This transit service expansion will greatly increase travel options and has the potential to increase use of transit far beyond current levels. Although typically viewed in a regional sense, transit service expansion can be highly successful in localized areas. For example, San Jose has experienced 15 - 20% transit commute use for higher density residential projects within walking distance of light rail. In addition, employers participating in the VTA's "Eco Pass" program have experienced significant increases in transit use by employees. Based upon a survey conducted in May 1997, the number of employees commuting on VTA transit vehicles increased 55% after receiving Eco Passes.

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*Outside Influences on City Transportation Policy*

The City has the ability to execute strategies and achieve a limited degree of effectiveness within its own limits. Sunnyvale is one city among many in a large, urban area. Travel, land development, air quality, and a host of other concerns are shared with other jurisdictions. Several regional roadways bisect the City, bringing additional pass-through traffic. Urban growth and the transportation infrastructure in the rest of the region have a profound effect on travel and transportation policy in Sunnyvale.

The City's ability to implement change also has limitations. The last decade has seen significant new roles, responsibilities, and tactics at all levels of government to provide alternative transport.

The Santa Clara Valley Transportation Authority provides transit service. Ridesharing services and a carpool lane network have been planned and implemented by others. Air quality and congestion management legislation have placed the onus for regulation on the state and the Bay Area Air Quality Management District. Emerging technological alternatives such as telecommuting are largely being implemented by the private sector.

This regional environment has certain implications. Regional agencies are establishing procedures to foster consistent policy and prioritize funding to projects. The City participates in the Association of Bay Area Governments, the Metropolitan Transportation Commission, and the Santa Clara County Transportation Authority in order to exert some influence. Conversely, City policy needs to consider regional policies, and often conform to regional policies, in order to achieve goals in areas of regional concern and to acquire outside funding.

While there is considerable pressure to conform to regional goals and policies, the City could choose not to conform to outside policies and mandates. This would likely result in a loss of outside state and federal capital funding, with agencies' decisions negatively affecting travel to, from, and through Sunnyvale.

There are also economic pressures across jurisdictional boundaries. For example, transportation policy that creates imbalances between neighboring communities can affect economic development.

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## Neighborhood Traffic Engineering

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Neighborhood integrity is a cornerstone of Sunnyvale's land use planning. Managing traffic in neighborhoods is an integral part of maintaining the livability of the community. Historically, the City has sought to provide adequate capacity on its arterial streets as the best means to reduce the diversion of trips to local residential streets. However, as the City matures and opportunities for enhancing arterial capacity diminish, the potential exists for more commute trips to be diverted to residential streets. Over time, this can contribute to the degradation of neighborhood units.

The primary tools for neighborhood traffic control are stop signs, yield signs, turn restrictions, and traffic enforcement. The City has also examined neighborhood "traffic-calming" methods and procedures. The goal of such techniques is to discourage through traffic. These types of actions can have unintended negative consequences. Impeding traffic flow with speed bumps or diverters increases energy use, exhaust emissions, noise, congestion, and dust, and decreases emergency response times. Traffic-calming actions are intended to modify travel patterns, which can have the undesirable effect of shifting traffic from one area to another.

City policy has traditionally called for minimizing impacts of the transportation system on adjacent land uses and then using an aggressive approach toward maintaining arterial and collector street traffic flows. This approach involves a commitment to a strategy that can both provide the necessary capacity and reduce travel demand. Transportation Systems Management strategies, such as restricting turn movements and manipulating the traffic signal system to maximize arterial street flows, are important tools. Continued use of stop and yield signs where appropriate and corresponding enforcement will also help keep commuter traffic out of neighborhoods. Promoting alternative transportation modes can augment these efforts as well.

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## Infrastructure Capacity

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The City and regional transportation system is nearing, and in some areas has reached its capacity. If current trends continue, significant congestion during longer periods throughout the day will become more commonplace. How should forecasts of roadways exceeding their capacity be dealt with? Four general categories of options (plus combinations) are available to address capacity issues:

- ◆ Land Use Actions
- ◆ Physical Modifications
- ◆ Behavior Modification Techniques
- ◆ Lowering or Changing Standards
- ◆ Combination Approaches

Each option involves tradeoffs among the desired goals for the community. Figure 3.7 illustrates the connection between the options and the four long-standing goals of the community.



**Figure 3.7: Transportation Infrastructure Capacity Options and Community Goals**

OPTIONS	GOALS			
	Strong Economy	Appropriate Housing	Efficient Transportation	Community Character
	●	●	○	●
	●	○	●	●
	○	○	●	○
	●	○	●	●
<p>● Strong Influence</p> <p>○ Moderate Influence</p>				

For each option there is a need to examine the effects on desired goals. For example, modifying land uses so that there are no impacts on the roadway system could mean that business opportunities are limited and the strong economy goal may not be met. Physical modification may not be popular when it involves acquiring private property, potentially affecting the community character and economic well-being of the City. Many behavior modification techniques are untested and the results are unpredictable. Policies to accept more congestion need to consider community character and efficient transportation.

Sunnyvale's General Plan correlates land use and transportation policies. The planned future transportation system should be sufficient to accommodate future traffic demand without compromising traffic level of service (LOS) standards. The City could lower its LOS standards. However such a change could adversely affect community character, the economy, and environmental health, while also raising regulatory, legal, and revenue issues for the City.

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### *Land Use Actions*

There are a variety of land use strategies that achieve a greater integration of land uses that shorten or reduce trips or make alternative transportation modes more convenient. Some of these strategies include zoning for mixed uses, site design oriented toward transit and alternative transportation access, and increased density at transit hubs with offsetting density decreases elsewhere.

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### *Physical Modifications*

Physical modifications can include re-striping the number of lanes, modifying or adding and subtracting traffic signals, or building new intersections and roads. Building new facilities in a mature suburban area produces room for more cars, but is the most costly and is incrementally less effective. Funding costly capital improvements is a tremendous challenge. Physical modifications fall into two categories, described below.

*Transportation Systems Management (TSM)*: TSM typically involves less expense and is the first course of action. TSM projects optimize the capacities of existing facilities. TSM includes signal coordination and optimization, improvements for other transportation modes such as bikeways, bus duckouts and convenient transit service, minor road widenings, and left-turn restrictions. The City has used many of these strategies. Further TSM improvements are likely to be minimally effective.

*Large-scale, City-wide Capital Improvements*: The current Sunnyvale roadway system is adequate for the current level of development, but it cannot accommodate all future traffic should land develop to the forecasted build-out level. City policy has called for land development and the transportation system to be compatible.

The City's plans identify major roadway infrastructure improvements as mitigations to maintain LOS "D" and achieve compatibility between land use and transportation (see Appendix E for a map and list of City-adopted mitigation measures).

Additional traffic improvements recommended as mitigation measures for the City's recent major land use plans (e.g., Futures, Downtown Specific Plan) and the build-out of the Lockheed Martin Plant I are not included in the City's long-term capital improvements budget. If the City wishes to realize the plans it has made and improve its roadways as the means to mitigate traffic, additional projects will need to be programmed. Methods for financing and distributing costs (approximately \$100 million) for these traffic improvements will need to be developed, as they are not currently in the capital budget.

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### *Behavior Modification Techniques*

In transportation planning, behavior modification techniques attempt to change the choices that travelers make. Sunnyvale's 1981 Transportation Element included many policies supporting alternative transportation and transportation demand management. Sixteen years later, the City has had little effect on influencing the mode choice or travel characteristics of its residents and workers.

The City needs a strategy that can effectively address both capacity and resource constraints. Critical questions for the City are:

- ◆ Can alternative transportation modes play a major part in solving Sunnyvale's roadway capacity issues?
- ◆ Can Sunnyvale use its limited powers and resources to implement behavior modification techniques?

*Market-based Strategies:* Transportation "marketing" involves the creation of marketable transportation services (such as parking, peak hour travel time, or mode choice) and attaching prices to these services. Pricing structures are set to influence the desired travel behavior. Significant relief solely through this approach alone would require harsh City actions.

Market-based and regulatory approaches include incentives for positive change (e.g., high occupancy vehicle lanes) and/or disincentives for continuing with old patterns (e.g., charging for parking). Most success has been in flattening and extending the period of peak traffic congestion.

Market-based strategies within the City's capabilities include:

- ◆ In lieu provisions, which enable or require employers to substitute van-pooling and other commuting alternatives for on-site parking stalls.
- ◆ Parking "cash-out" requirements that require employers who provide parking space for employees to offer the employees a choice of cashing-out (on a monthly or annual basis) the market-value of the parking space. This approach is intended to promote carpooling, transit use, walking, and bicycling.
- ◆ Reduced parking requirements for businesses that institute and maintain flextimes, telecommuting, or other programs that have a demonstrated effect on peak-hour traffic.
- ◆ Permitting flextime and limited telecommuting, perhaps on an experimental basis, for City employees to serve as a model to other businesses.
- ◆ Permitting reduced minimum parking requirements for employers who provide bicycle lockers and showers.

Transportation Demand Management (TDM): TDM programs encompass those strategies that reduce travel demand (e.g., telecommuting, teleshopping, and flextime). TDM strategies include carpooling, increased use of public transit, telecommuting, and other strategies to reduce the number of trips made in single occupant vehicles.



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### *Lowering or Changing Standards*

Lowering Level of Service (LOS) Standards: Another option for addressing capacity would be to accept a lower LOS on City roadways. Rather than changing the amount of traffic a street can physically handle, this option changes the amount of congestion the community deems acceptable. LOS “D” is the policy per the 1981 Transportation Element for all roadways in Sunnyvale. However, the region’s Congestion Management Program (CMP) has established LOS “E” for roadways identified as part of the CMP countywide transportation system. Changes to acceptable LOS standards could change the character of the community over time.

It has been observed that lowering allowable levels of service will affect driver behavior. Some people will start to work earlier or leave later to avoid congestion, increasing the duration of traffic congestion. Drivers with a higher tolerance for congestion will continue to use the traditional peak time. These results could have a deleterious effect on a city’s ability to attract new business, as companies consider transportation infrastructure in their locational decisions. Figure 3.8 compares the number of deficient intersections for selected roadways for various LOS policies.

**Figure 3.8: 2010 Projected Deficient Signalized Intersections for Various LOS Policies<sup>1</sup>**

<b>Roadway</b> ( <i>total signalized intersections</i> )	<b>Number of Deficient Intersections</b>		
	<b>LOS “D”</b> ( <b>current policy</b> )	<b>LOS “E”</b> <b>CMP Regional Roadways,</b> <b>LOS “D” on all others</b>	<b>LOS “E”</b> <b>for all streets</b>
<b>Regional Roads</b>			
Lawrence Expressway (10) <sup>2</sup>	5	3	3
Mathilda Avenue (18)	3	2	2
El Camino Real (12)	3	0	0
Sunnyvale-Saratoga Rd. (6) <sup>3</sup>	2	0	0
<b>Non-Regional Roads</b>			
Wolfe Road (12)	4	3 <sup>4</sup>	0
Mary Avenue (16)	1	0 <sup>4</sup>	0

<sup>1</sup> Based on 1992 data

<sup>2</sup> Includes Homestead Rd. intersection, which is 1/4 in Sunnyvale

<sup>3</sup> Includes Homestead Rd. intersection, which is in Cupertino

<sup>4</sup> Assumes that policy for regional road (El Camino Real) intersection takes precedence. El Camino Real intersection would be at LOS “E”.

**Alternative Measurements:** Level of service is a traditional measure used for defining transportation problems, specifically roadway congestion. However, other measures can be used. Measures like mode split, vehicle miles of travel per person trip, person throughput, air quality, and transit frequency and accessibility would include the impact on, and the effectiveness of, non-automobile modes when new development occurs. Use of such measures in capital improvement planning and land use decision making could have a significant impact on the types of transportation solutions that the City relies on to support its land use plan.

Data gathering and analysis for alternative measures can be cumbersome. Extensive baseline data gathering and modeling is required. Assumptions made in a modeling

process can have a profound effect on the results of measurements. Project-specific data gathering may also be difficult and time consuming and would increase the cost of development. Also transit, demand management regulations, and other alternative transportation solutions that multi-modal performance measures would rate may not be within the City's purview or financial capability to implement.

*Performance-based Standards:* Another potential policy change would involve the adoption of performance-based standards. Traditionally, floor area ratio (FAR), lot coverage, and units per acre have determined the intensity of development. When a proposal triggers an environmental review, such as a traffic study, LOS and other standards are also considered. In cases where LOS would be significantly impacted, mitigation measures such as capital improvements might be required. In such cases, the need to finance capital improvements can halt a project.

It may be possible to consider the number of peak hour trips, in addition to other zoning standards, to determine maximum project intensity, both with and without the need for capital improvements. Rather than limiting the amount of building area on the campus, a use permit or other zoning tool could be approved with a cap on the total number of peak period trips. If there is a limit imposed on the number of additional vehicle trips generated by the development, mitigation measures might not be needed. Annual monitoring of traffic levels would be needed to stay abreast of traffic conditions and to indicate to the applicant how much remaining capacity is available. This method could be especially effective for phased development proposals, such as large industrial campuses that plan for growth over 10- to 20-year periods. This method was adopted for Lockheed Martin Plant I.

Capacity-resolving methods could be explored and implemented through ongoing review of a phased development plan. For example, it would be in the best interest of business to implement its own TDM measures in order to maximize its use of the site. This approach places the obligation on the generator of the trips and not the City.

This approach would be difficult to administer on a site-by-site basis for smaller developments. To be effective for smaller developments in built-out areas, each site may need to be considered as part of a group that is monitored as a whole. Determination of the proportion of any one site's contribution to peak hour trips for the group would make monitoring more complex.

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*Combining Capacity Improvements with Transportation Systems Management (TSM) and Transportation Demand Management (TDM)*

This alternative would be a cafeteria-style approach to address current and future transportation constraints. It would be comprehensive and flexible in order to address changing transportation constraints and economic development strategies. The City would monitor traffic conditions and schedule capital improvements as conditions and funding options warranted. In addition, it would study and develop TSM, TDM, and market-based approaches to increase overall transportation system efficiency and reduce travel demand.

Without a comprehensive transportation system mitigation plan, the City will address land use changes on a case-by-case basis. Over the next 10 to 15 years, the City may experience significant traffic and land use conflicts that are damaging to the orderly physical development, social environment, and economic vitality of the community.



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## Funding

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### *Exclusive General Fund/Gas Tax Fund*

In the current 20-year budget forecast, the City is essentially breaking even. The three primary capital funds (the General Fund, the Gas Tax Fund, and the Infrastructure Fund) have committed funds in the 20-year Resource Allocation Plan for a total of about \$100 million in expenditures with matched revenues. The City can assume that the cost of new transportation-related capital projects would nearly double the total projected cost for all capital improvements to \$200 million over the next 20 years (see Appendix E for approximate cost of transportation mitigations.)

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### *Assessments/Taxes/Fees*

The General Plan Fiscal Sub-Element identifies various methods for funding infrastructure improvements including targeting services or programs for tax or fee increases, seeking other sources of revenue, and increasing revenues from specific sources (e.g., business license tax, transient occupancy tax, and utility users tax). Combining General Fund and Gas Tax Funds and outside sources of public funding (federal and state programs) with new assessments, fees, or taxes for transportation improvements could provide for a program of capital improvements to mitigate planned development and projected traffic growth. These options may not be popular, but would provide a mechanism for full or partial funding of transportation projects.

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### *Various Fee, Assessment, and Taxation Methods*

**Transportation Impact Fees:** These fees are single payments imposed on developers at the time of development approval. The provision of capacity to serve the new development, rather than to overcome a backlog of existing deficiencies, establishes the fee. Fees are calculated to be the proportionate share of the capital cost of providing major facilities for that development. This type of fee will typically pay for only a part of a needed capital project. Impact fees typically do not generate significant revenues in mature communities, such as Sunnyvale; they also have a potential

negative perception and adverse impact on economic development efforts. However, it is useful in lowering the City's costs, particularly if other projects are anticipated that can also contribute to the project.

*Benefit/Assessment Districts:* These districts are geographically defined areas where annual fees on property reflect special benefits the property receives from local improvement. If there are City-owned properties within the benefit area, the City participates in the benefit assessment.

As in the case of transportation impact fees, the fee mechanism for benefit/assessment districts must account for only the district's contribution to the deficiency. There would likely be a need for City funds to augment revenue from such a new fee in order to provide full funding for the needed improvements. Also, there is a time lag in accumulating the total cost of the improvement. Proposition 218 requires that benefit assessments are subject to a vote by those who would be assessed. The assessment must be in proportion to the value of the special benefit received by the parcel.

*Local Taxes:* Local taxes are voter approved tax or debt to fund needed (transportation) capital improvements. These taxes are levied either to fund special or general purposes in the community. General taxes benefit the broader community and the proceeds go to the General Fund. Special taxes pay for a particular purpose and must be maintained in a separate fund. Currently, specific taxes must be approved by two-thirds of the voters in order to be enacted. Achieving this proportion has been difficult. Several jurisdictions in California have posed advisory measures to the electorate about how funds should be spent at the same time that the authorization for expenditure was placed on the ballot. A 1996 example in Santa Clara County is Measure A/B, which appropriated an incremental sales tax for transportation improvements in the County.

**Regional or Area-Wide Gas Taxes:** Regional or area-wide gas taxes prompt market-based decisions about commute trips including trip lengths and the locations of origins and destinations. Such taxes discourage drivers from choosing long commutes. A gas tax is probably the most effective funding tool available; however, it could also be politically challenging to implement.

**Bonds:** Bonds are debt financing vehicles issued by governments at the discretion of the electorate to provide funds for improvements and allow government agencies to pay off the cost plus interest over time. There are a number of types of borrowing instruments, such as general obligation bonds, lease revenue bonds, or Mello Roos bonds. Bonds themselves do not increase revenues, but rather provide capital funds in return for eventual repayment, including significant borrowing costs. The sources of repayment for debt financing vary with the type of financing, and may include funds from leases, assessments, etc. In general, an increase in revenues to support debt requires a two-thirds voter approval.

**Voluntary Proffers:** Voluntary proffers are negotiated payments by developers to government to pay for all or a portion of infrastructure improvements in support of the development.

This approach uses project-specific conditions of approval as a mechanism to secure funding. This approach is common for linking project approvals to needed traffic mitigation, but the burden on development may increase substantially as traffic service levels deteriorate over time.

**Outside Funding:** The City monitors funding opportunities for a wide variety of transportation infrastructure improvements. Sunnyvale has successfully competed for funds in the past; however, the region suffers from a short supply of capital funds for transportation.

Local capital projects are typically prioritized lower than regional projects. For example, the Congestion Management Program (CMP) process has scored transportation projects with a regional or sub-regional benefit higher than projects serving a local community.

In Santa Clara County, a County-wide Deficiency Plan (oriented almost exclusively toward freeways and



expressways) currently under development may incorporate funding and implementation plans that mandate financial contributions of both the public and private sectors. This funding would be applied to the transportation projects throughout the region that best mitigate existing or projected regional congestion. It is difficult to ascertain what direct impact these plans may have on funding alternatives for needed improvements to Sunnyvale's transportation infrastructure.

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## Conclusion

Within Sunnyvale a primary focus is the integrity of all types of neighborhoods: residential, commercial, and industrial. The gradual intrusion of nontraditional issues in industrial areas remains a challenge. The need for support and social services should be balanced with the needs of business and industry. The development of commercial areas adjacent to residential neighborhoods poses issues of noise, traffic, and building design congruity with the existing neighborhood. In much the same way, the introduction of new housing needs to achieve a balance between its design with the surrounding community while responding to market demand.

In industrial areas of the City, renewed interest in increasing the FARs on various sites during both development and redevelopment of selected properties has also become more evident. While this directly supports jobs and economic development goals, it results in additional traffic on both local and regional transportation arteries. Land use decisions directly impact transportation in and through the community, as residents and businesses alike use various transportation modes: automobile, bicycle, pedestrian, and transit.

Historically, capital improvements to transportation corridors has been the primary emphasis. Capital improvements, however, remain very costly, and communities face reduced opportunities for regional, state, and federal funding. Local options such as assessment districts, taxes, and fees are alternative sources to consider. Other modes, transportation system management, and transportation demand management techniques are also being introduced. Another approach is to examine modifications to the development standards, including the FARs in industrial areas, as a means to moderate the impact of traffic related to job growth. A major challenge for Sunnyvale will remain the impact of commuter traffic to and through the City with the expansion of the job base.



In summary, land use and transportation choices have an affect on virtually all other elements of the General Plan. Decisions on the use of land determine the character of the community, its economic vitality, and the future demand for services. The City has expressed its goals for the future with emphasis in four broad areas:

- ◆ Community Character (expressed in terms of appearance and balance)
- ◆ Appropriate Housing
- ◆ Efficient Transportation
- ◆ Strong Economy

The goals of appropriate housing, a strong economy, and transportation efficiency contribute to and create a sense of community character. Since Sunnyvale is part of the region, these factors are further influenced by changes in population, jobs, and transportation that take place in both the region and the City. These relationships form the basis for the Land Use and Transportation Element.

The concluding chapters of the Land Use and Transportation Element include Facts and Assumptions and Community Condition Indicators (Chapter 4) and Goals, Policies, and Action Statements (Chapter 5).

# Chapter 4

## Major Facts, Findings and Assumptions, and Community Conditions Indicators





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## CHAPTER 4 - MAJOR FACTS, FINDINGS and ASSUMPTIONS, and COMMUNITY CONDITIONS INDICATORS

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**C**hapter 4 consists of three sections: major facts, findings and assumptions, and community conditions indicators. The facts, findings and assumptions form the basis for the goals, policies, and action statements of Chapter 5, and are derived from the community conditions, trends, and issues discussed earlier in Chapters 1, 2, and 3. The community conditions indicators are measures that the City uses to track changing conditions and may implicate the need or effectiveness of City policy.

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### MAJOR FACTS

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The following facts form the basis of many of the goals and policies of the Land Use and Transportation Element.



1. In 1995, Sunnyvale's population was approximately 126,800; ranking it the twenty-ninth largest city in the state, the fifth largest in the Bay Area, and the second largest in Santa Clara County. The City is 24 square miles. The average number of persons per household in 1995 was 2.50.



2. The community has become increasingly diverse over the past twenty years. In 1990, white non-Hispanics made up 65% of the population, Asians and Pacific Islanders were 19%, Hispanics were 13%, and African Americans were 3% of the population.
3. In 1995, the mean household income in Sunnyvale was \$66,300, which was 11% less than the mean household income in Santa Clara County.
4. In 1995, there were 107,570 jobs, however, more current estimates suggest a significant increase to about 120,000 in 1997. The City has 78 employers with 100-500 employees and 14 employers with more than 500 employees. It has the fourth largest number of jobs of any city within the nine-county Bay Area. The highest percentage of these jobs are devoted to manufacturing and wholesale (58%) and the service sector (22%).
5. In 1995, there were approximately 10,300 businesses licensed to operate in Sunnyvale. The number of business licenses issued yearly increased steadily in the early 1990s. In 1995, about 4% of the City's business licenses were issued for home businesses.
6. Over 40% of the land in Sunnyvale is in residential use: 25% is in single-family dwelling units; 11.4% is in multi-family homes; and 3.5% is in mobile homes. Of the total residences in Sunnyvale, 49% are owner occupied, and 51% are rentals.
7. Sunnyvale is the geographical center for the high-tech industry in Silicon Valley.
8. Almost 93% of the industrial parcels in the City have been developed. Floor-area-ratios (FAR's) range from 16% to 143%. And 58% of the parcels in the industrial areas are developed with less than a 35% FAR.
9. Overall, 96% of the parcels in the City are developed. The remaining opportunities include infill development, redevelopment of under-utilized or deteriorated sites, and intensification of existing land use in designated areas.

10. Vacant parcels represent approximately 265 acres. There are 45 acres (17%) designated for residential use, 206 acres (78%) for industrial use (including 124 acres owned by Lockheed/Martin), 11 acres (4.1%) for commercial use, and less than 1% designated for public and quasi public uses.
11. Sunnyvale has taken actions to ensure that development is within existing service capacity, while encouraging a variety and balance of land uses.
12. The automobile is the dominant mode of transportation. There are 298 miles of streets within the City, but the majority of traffic is carried on a few freeway, expressway, and arterial segments totaling 50 miles.
13. About 70% of Sunnyvale's peak hour traffic is made by nonresidents entering, leaving, or passing through Sunnyvale, rather than by Sunnyvale residents. Drive-alone trips by workers commuting to Sunnyvale have been increasing (78% of all trips in 1990). A high portion of total peak hour traffic is in a single direction, accessing a number of employment sites in the northern part of the City.
14. Sunnyvale has a total of 163 signalized intersections. The City operates 117 of those traffic signals and, of these, 59 are interconnected. The remaining signals are operated by the State or County.
15. The Santa Clara Valley Transportation Authority provides 26 bus routes in Sunnyvale. Bus service and ridership is affected by outside funding levels, cost-effectiveness, and the local economy. Virtually all Sunnyvale residents currently have access to transit within ¼ mile of their homes. Transit's share of the modal split in Sunnyvale has declined slightly over the last seventeen years. Overall ridership rates have cycled with the local economic climate and with improvements in transit service, particularly Cal Train service. Transit trips make up 2.5% to 3% of resident and worker commute trips.
16. Bicycle and pedestrian travel make up a small portion of trip-making in Sunnyvale. Approximately 1% of Sunnyvale residents commuted by bicycle in 1990, while about 1.5% walked. The statistics are very similar for Sunnyvale workers.
17. There are bicycle lanes on 15 miles of streets, 2.6 miles of separated bicycle path, and 4.6 miles of signed bicycle routes.

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## FINDINGS AND ASSUMPTIONS

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The Goals, Policies, and Action Statements within the Land Use and Transportation Element are based on the following assumptions:

1. Land use and transportation issues are closely linked and fundamental to the physical development of the City.
2. The City wants to create and enhance an attractive community with a positive identity that supports a high quality of life.
3. Sunnyvale desires to remain an industrial center and a strong suburban, residential community. The City desires to preserve and improve the quality of its residential, commercial, and industrial neighborhoods.
4. There will be increases in regional population and employment that will affect transportation facilities and land uses in Sunnyvale.
5. Sunnyvale's projected population growth is similar to the projected growth rates for Santa Clara County. The 2010 population estimate is for 142,900 residents. The number of persons per household is expected to increase modestly to 2.55 in the year 2000 and then gradually decline to 2.50 by 2010.
6. The Sunnyvale community will become more ethnically diverse over the next decades.
7. The number of seniors is expected to increase dramatically; the number of adults will remain relatively constant; and the number of children will increase by a moderate amount.

8. Future travel demand within Sunnyvale will result in severe traffic congestion as long as that demand is by automobile with traditional levels of occupancy (1.2 persons per car). Levels of service will decline to unacceptable levels at 18 intersections if significant transportation improvements are not made. Sources of needed regional, state, and federal funds or matching funds will continue to be challenging and problematic, while the costs of capital projects will continue to increase.
9. Severe traffic congestion during peak demand periods has a negative impact on economic viability, encourages traffic to use neighborhood streets and detracts from community character. As a result, severe traffic congestion warrants corrective actions.
10. While the percentage of travel by auto (relative to other modes) may decline in the future, the overwhelming majority of trips will likely continue to be made by automobile.
11. Transportation system management improvements, such as traffic signalization, have largely been accomplished. Therefore, additional TSM actions will result in marginal capacity improvements only.
12. Sunnyvale promotes a strong local economy that: 1) provides jobs and commercial services for residents, and 2) provides fiscal support for desired City services. Employment projections are from 107,570 jobs in 1996 to an estimated 124,510 jobs in year 2010. Continued growth in service sector jobs over recent decades reflects trends in both the Bay Area and the nation. Several manufacturing processes will move out of the area, seeking lower labor and real estate costs.
13. To preserve a balance and variety of land uses, the City recognizes the importance of having sufficient numbers and types of jobs and housing to address increasing population and job growth and sufficient transportation capacity to support this growth.



14. Market demand currently supports the development of single-family units for infill development. However there is continuing pressure for affordable, varied housing options that support job growth and the changing lifestyles of Sunnyvale residents.
15. Sunnyvale wants to allow opportunities for growth and expansion in accordance with its adopted plans, while assuring that these changes can be accommodated by the current and future transportation system.
16. Land development policies will consider transportation impacts and provide opportunities to accommodate alternative transportation modes and decrease vehicle trips and vehicle miles traveled. Use of these modes will remain a relatively small portion for the City's residential and worker population as long as automobiles are more cost and time-effective, and infrastructure for alternative transportation remains underdeveloped.
17. Land use planning to bring jobs and housing closer to major transit and roadway corridors is an effective means of coordinating transportation and land use.
18. Short-term planned transit service improvements include the extension of light rail transit through northern Sunnyvale to Mountain View. Extension of light rail transit from Lockheed to downtown Sunnyvale is planned in the next 20-25 years. Expanding local and express bus service, and increasing rail feeder service are planned in the next 10 years.
19. The use of Moffett Federal Airfield will continue to be a major land use issue for the City due to its size and location. Moffett Federal Airfield is a significant activity center for the region due to its function and importance to the regional economy.
20. Sunnyvale will remain an active participant in regional land use and transportation planning activities that impact the region and the City.
21. Silicon Valley will continue to be subject to economic cycles that impact the number of jobs and rate of housing growth. Software, bioscience, and environmental industries are emerging as strong sources of future growth.

22. The City will consider demand management concepts in the provision of local government services, including the revision of the goals, policies, and action statements of the Sunnyvale General Plan.
23. The City will continue to provide high quality, cost-effective services to both residents and businesses in the community.
24. To provide excellent and exemplary customer services, the City will maintain technical and administrative staff expertise and functional, convenient facilities.
25. Land use and transportation issues will be continuously monitored at various levels (neighborhood, citywide, and the city as part of the region) to best ascertain their implications to the community.
26. The four fundamental concepts of community character, appropriate housing, efficient transportation, and a strong economy are core principles of the Land Use and Transportation Element.

# COMMUNITY CONDITIONS INDICATORS

The Community Conditions Indicators come from the following sources: ABAG Projections '96, Report to Council, 8810, February, 1996; Sunnyvale Planning Division, Automated Land Information System, 1995; and various other data reports produced and managed by the City.

Figure 4.1: Community Character

Community Character	1980-81	1990-91	1995-96
Square miles in the incorporated City	23.31	23.74	23.82
City population	108,362	119,649	126,100
Persons Per Household	2.44	2.39	2.50
Acres of Vacant Land	N/A	N/A	267
Areas with Specialized Plans	0	2	5
Acres of State and Federal Facilities within the Urban Service Area	1,637	1,637	1,637
Sunnyvale Municipal Code violations reported annually	528	600	763
Average Industrial FAR	N/A	N/A	34%

**Figure 4.2: Appropriate Housing**

<b>Appropriate Housing</b>	<b>1980-81</b>	<b>1990-91</b>	<b>1995-96</b>
Dwelling units: Single-family	21,869	24,109	24,411
Multi-family	21,148	22,055	23,993
Mobile homes	4,189	4,221	3,634
Percentage of housing stock over 25 years of age	19%	65%	74%
Owner-occupancy	51%	46%	49%

**Figure 4.3: Strong Economy**

<b>Strong Economy</b>	<b>1980-81</b>	<b>1990-91</b>	<b>1995-96</b>
Mean Household Income (in constant 1995 dollars)	\$55,699	\$64,813	\$66,300
Total Jobs	116,253	115,270	107,570
Employed Residents	62,698	70,525	69,200
Building plans received that require checking	1,647	2,112	2,281
Building safety permits issued	5,193	6,562	4,218
Building permit inspection requests	16,681	31,145	38,672
Administrative permits and requests	N/A	228	570
Minor permit applications	N/A	137	40
Major permit applications	N/A	88	57
Business licenses requiring zoning review	1,656	2,119	2,145
Approved General Plan Amendments	N/A	3	1
Approved Rezones	N/A	7	4
Commercial space added (square feet)	N/A	N/A	-13,489
Industrial space added (square feet)	N/A	N/A	183,138



**Figure 4.4: Efficient Transportation**

<b>Efficient Transportation</b>	<b>1980-81</b>	<b>1990-91</b>	<b>1995-96</b>
Vehicle miles traveled on a weekday	1,858,000	2,017,125	1,958,207
Citizen traffic calls	2,050	5,101	4,382
Street intersections with traffic signals	92	112	116
Number of traffic signals interconnected	14	50	59
Street lights	7,993	8,745	8,749
Traffic accidents	3,032	2,297	2,079
Traffic accidents per million vehicle miles	4.50	3.53	3.25
Miles of City owned streets	270	298	300
Miles of bike lanes and routes	20	61	61
Number of bicycle accidents	79	94	59
Bicycle Facilities Added	N/A	N/A	N/A
Traffic regulatory/information signs	8,575	13,200	14,200
Selected average - daily volume traffic counts:			
A. Mathilda Ave. between Maude & Bayshore	46,600	52,180	54,714
B. Homestead Rd. between Hollenbeck & Sunnyvale-Saratoga Rd.	21,000	25,989	22,605
C. Mary Ave. between Central Expwy & Maude	12,200	13,792	12,822
D. Remington Dr. between Sunnyvale-Saratoga Rd. & El Camino Real	11,800	16,520	14,778
E. Wolfe Rd. between Evelyn & Kifer	27,700	33,529	45,067
F. Sunnyvale-Saratoga Rd. between Remington & Fremont	35,800	46,458	25,800
County bus routes servicing the City	11	25	22
Average bus boardings and deboardings per day	12,843	17,031	16,863
CalTrain commuter trains per day (Northbound & Southbound)	37	52	60
Average train passenger boardings and deboardings per day	1,760	2,570	3,991
City owned parking lot spaces	5,580	6,467	6,515

# Chapter 5

## Goals, Policies and Action Statements





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## CHAPTER 5 - GOALS, POLICIES, and ACTION STATEMENTS

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**T**he previous four chapters defined the vision for land use and transportation within Sunnyvale. This Chapter provides the plan for accomplishing that vision.

The General Plan articulates the community's vision through the implementation of its goals, policies and action statements. These terms, as used in the Sunnyvale General Plan, are defined as follows:

**Goals** are the end toward which effort is directed, or "high level outcomes" desired for the community.



**Policies** are definite courses of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions. The policies are the tools for achieving the goals (much like the "by" statements in an outcome structure).

**Action Statements** are the implementation measures taken to accomplish the policy and the "service delivery plans" that are needed to implement the policies.



Since the first General Plan was adopted for Sunnyvale in 1957, the City has expressed the goals for the future of the City with emphasis in four broad areas:

- ◆ Community Character
- ◆ Appropriate Housing
- ◆ Efficient Transportation
- ◆ Strong Economy

The relationships among these four goals are complex. While each goal is unique they remain directly and indirectly related to one another. Since Sunnyvale is part of a region, these factors are also shaped by changes in population, jobs, and transportation that take place in Sunnyvale and beyond the City limits. These relationships form the basis for the vision and the goals, policies, and action statements of the Land Use and Transportation Element.

These broad concepts are useful constructs, but are not sufficient to answer specific questions about what comprises the current character of the community. Yet, they are helpful in "testing" the relative importance of various policies and their alternatives. Changes in any of the four major goals will impact the others. The interplay among these various goals defines community character both now and in the future.

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## Regional Issues

The General Plan acknowledges a regional context for local decisions; how local decisions affect regional facilities and how continued regional growth affects the City's plans for the future. Within its borders, the City has the ability to execute policies and strategies. But Sunnyvale is one of many cities in the region. The City is limited in its ability to influence travel demand that is generated outside of the City limits. Regional agencies are advocating and establishing procedures to foster consistent policies and prioritize funding for capital projects. City policy needs to consider and often conform to regional policies in order to compete for state and federal funding.

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## City-Wide Context

The General Plan is sharply focused on maintaining the City's four over-arching goals of community character, appropriate housing, efficient transportation, and a strong economy throughout the City. The City-wide goals, policies and actions statements in this plan concentrate on city-wide characteristics that help define Sunnyvale.

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## Neighborhood Substance

Sunnyvale's residents and workers value the high quality of the City's individual residential, industrial, and commercial neighborhoods. The General Plan acknowledges the importance of preserving and improving these distinct areas and promoting appropriate land uses and transportation services to enhance these unique, cohesive areas.

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## ORGANIZATION OF THE GOALS, POLICIES, AND ACTION STATEMENTS

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The following illustrates the organization of the Goals, Policies and Action Statements.

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### The City As Part Of A Region

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- ◆ Transportation
- ◆ Land Use

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### The City

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- ◆ Community Character
- ◆ Appropriate Housing
- ◆ Efficient Transportation
- ◆ Strong Economy

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### The Neighborhoods

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- ◆ Residential
- ◆ Industrial/Research and Development
- ◆ Commercial/Office
- ◆ Public and Quasi-Public

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## THE CITY AS PART OF A REGION

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**GOAL R1** PROTECT AND SUSTAIN A HIGH QUALITY OF LIFE IN SUNNYVALE BY PARTICIPATING IN COORDINATED LAND USE AND TRANSPORTATION PLANNING IN THE REGION.

### Policies

- R1.1 Advocate the City's interests to regional agencies that make land use and transportation system decisions that affect Sunnyvale.
- R1.2 Support coordinated regional transportation system planning and improvements.
- R1.3 Promote integrated and coordinated local land use and transportation planning.

### *Action Statements*

- R1.3.1 Participate in intergovernmental activities related to regional and sub-regional land use and transportation planning in order to advance the City's interests.
- R1.3.2 Promote shorter commute trips and ease congestion by advocating that all communities provide housing and employment opportunities.
- R1.3.3 Monitor significant land use and transportation decisions pending in other communities to ensure that Sunnyvale is not adversely affected.



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## Transportation

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### Policies

- R1.4 Achieve an operating level of service (LOS) E or better for all regional roadways and intersections, as defined by the City functional classification of the street system.
- R1.5 Maintain a functional classification of the street system that identifies Congestion Management Program roadways and intersections, as well as local roadways and intersections of regional significance.
- R1.6 Preserve the option of extending Mary Avenue to the industrial areas north of U.S. Highway 101.
- R1.7 Contribute to efforts to minimize region-wide average trip length, and single-occupant vehicle trips.

### *Action Statements*

- R1.7.1 Locate higher intensity land uses and developments so that they have easy access to transit services.
- R1.7.2 Support regional efforts which promote higher densities near major transit and travel facilities, without increasing the overall density of land usage.
- R.1.7.3 Cooperate in efforts to study demand management initiatives including congestion-pricing, flexible schedules, gas taxes, and market-based programs.

## Policy

- R1.8 Support statewide, regional, and subregional efforts that provide for an effective transportation system.

### *Action Statements*

- R1.8.1 Endorse funding to provide transportation system improvements that facilitate regional and interregional travel.
- R1.8.2 Advocate the preservation of railroad lines for both commuter and freight transit.
- R1.8.3 Advocate improvements to state and county roadways serving Sunnyvale.
- R1.8.4 Support efforts to plan and implement effective inter-jurisdictional transportation facilities.

## Policy

- R1.9 Support flexible and appropriate alternative transportation modes and transportation system management measures that reduce reliance on the automobile and serve changing regional and City-wide land use and transportation needs.

### *Action Statements*

- R1.9.1 Support state and regional efforts to provide High Occupant Vehicle (HOV) lanes, ridesharing, mass transit service, bicycling, and Intelligent Transportation Systems.
- R1.9.2 Promote modes of travel and actions that reduce single occupant vehicle trips and trip lengths.

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## Land Use

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### Policy

- R1.10 Support land use planning that complements the regional transportation system.

#### *Action Statements*

- R1.10.1 Encourage a variety of land use types and intensities on a regional level while maintaining and improving regional transportation service levels.
- R1.10.2 Support alternative transportation services, such as light rail, buses, and commuter rail, through appropriate land use planning.
- R1.10.3 Encourage mixed uses near transit centers.

### Policy

- R1.11 Protect regional environmental resources through local land use practices.

#### *Action Statements*

- R1.11.1 Participate in state and regional activities to protect the natural environment.
- R1.11.2 Protect and preserve the diked wetland areas in the Baylands, which serve as either salt evaporation ponds or holding ponds for the wastewater treatment plant.

## Policy

- R1.12 Protect the quality of life for residents and businesses in Sunnyvale by actively participating in discussions and decisions on potential uses of Moffett Federal Airfield.

### *Action Statements*

- R1.12.1 Comprehensively review any proposed aviation services at Moffett that could increase aviation activity or noise exposure.
- R1.12.2 Encourage appropriate uses that best support business and residents' desire in Sunnyvale.
- R1.12.3 Pursue annexation of that portion of Moffett Federal Airfield within Sunnyvale's sphere of influence.



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## THE CITY

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### Community Character

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**GOAL C1** PRESERVE AND ENHANCE AN ATTRACTIVE COMMUNITY, WITH A POSITIVE IMAGE AND A SENSE OF PLACE, THAT CONSISTS OF DISTINCTIVE NEIGHBORHOODS, POCKETS OF INTEREST, AND HUMAN-SCALE DEVELOPMENT.

### Policy

- C1.1 Recognize that the City is composed of residential, industrial and commercial neighborhoods, each with its own individual character; and allow change consistent with reinforcing positive neighborhood values.

*Action Statements*

- C1.1.1 Prepare and update land use and transportation policies, design guidelines, regulations and engineering specifications to reflect community and neighborhood values.
- C1.1.2 Promote and achieve compliance with land use and transportation standards.
- C1.1.3 Require appropriate buffers, edges and transition areas between dissimilar neighborhoods and land uses.
- C1.1.4 Require that commercial activities be conducted primarily within a building.

## Policy

- C1.2 Encourage nodes of interest and activity, such as parks, public open spaces, well planned development, mixed use projects, and other desirable uses, locations and physical attractions.

### *Action Statements*

- C1.2.1 Promote downtown as a unique place that is interesting and accessible to the whole City and the region.
- C1.2.2 Encourage development of diversified building forms and intensities.
- C1.2.3 Encourage development of multi-modal transportation centers.
- C1.2.4 Maintain public open space areas and require private open space to be maintained.

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## Appropriate Housing

**GOAL C2** ENSURE OWNERSHIP AND RENTAL HOUSING OPTIONS IN TERMS OF STYLE, SIZE, AND DENSITY THAT ARE APPROPRIATE AND CONTRIBUTE POSITIVELY TO THE SURROUNDING AREA.

### Policy

C2.1 Provide land use categories for and maintenance of a variety of residential densities to offer existing and future residents of all income levels, age groups and special needs sufficient opportunities and choices for locating in the community.

#### *Action Statements*

C2.1.1 Ensure consistency with the City's Housing and Community Revitalization Sub-Element.

C2.1.2 Permit and maintain a variety of residential densities; including:

- ◆ Low density (0-7 dwelling units per net acre)
- ◆ Low medium density (7-14 dwelling units per net acre)
- ◆ Mobile home park (up to 12 mobile home dwelling units per net acre)
- ◆ Medium density (14-27 dwelling units per net acre)
- ◆ High density (27-45 dwelling units per net acre)
- ◆ Very high density (45-65 dwelling units per net acre)

- C2.1.3 Promote the maintenance and rehabilitation of existing housing.
- C2.1.4 Support the transition of Industrial to Residential (ITR) areas as opportunities to increase housing variety and stock.
- C2.1.5 Study housing alternatives; including, co-housing, live-work spaces, and transitional housing options to serve a changing population.

## **Policies**

- C2.2 Encourage the development of ownership housing to maintain a majority of housing in the city for ownership choice.
- C2.3 Maintain lower density residential development areas where feasible.

### *Action Statements*

- C2.3.1 Study the potential rezoning of properties in the R-4 and R-5 zoning districts to other zoning districts.
- C2.3.2 Promote and preserve single-family detached housing where appropriate and in existing single-family neighborhoods.
- C2.3.3 Monitor the progress of the remediation efforts for Futures Site 5 (General Plan Category of ITR for Low Medium Density Residential) to determine if and when conversion to residential use is appropriate.



## Policy

- C2.4 Determine appropriate density for housing based on site planning opportunities and proximity to services.

### *Action Statements*

- C2.4.1 Locate higher density housing with easy access to transportation corridors, rail transit stations, bus transit corridor stops, commercial services, and jobs.
- C2.4.2 Locate lower density housing in proximity to existing lower density housing.

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## Efficient Transportation

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**GOAL C3**    ATTAIN A TRANSPORTATION SYSTEM THAT IS EFFECTIVE, SAFE, PLEASANT, AND CONVENIENT.

## Policy

- C3.1 Achieve an operating level-of-service (LOS) of “D” or better on the City-wide roadways and intersections, as defined by the functional classification of the street system.

### *Action Statements*

- C3.1.1 Maintain and update a functional classification of the street system.
- C3.1.2 Monitor the operation and performance of the street system by establishing a routine data collection program and by conducting special data collection as the need arises.
- C3.1.3 Require roadway and signal improvements for development projects to minimize decline of existing levels of service.

- C3.1.4 Study and implement physical and operational improvements to optimize roadway and intersection capacities.
- C3.1.5 Promote the reduction of single occupant vehicle (SOV) trips, and encourage an increase in the share of trips taken by all other forms of travel.
- C3.1.6 Study the use of density, floor area limits, parking management, peak hour allocations, and other techniques to maintain or achieve acceptable levels of service on existing roadways.
- C3.1.7 Minimize the total number of vehicle miles traveled by Sunnyvale residents and commuters.

## Policy

- C3.2 Integrate the use of land and the transportation system.

### *Action Statements*

- C3.2.1 Allow land uses that can be supported by the planned transportation system.
- C3.2.2 Minimize driveway curb cuts, and require coordinated access when appropriate.
- C3.2.3 Encourage mixed use developments that provide pedestrian scale and transit oriented services and amenities.
- C3.2.4 Continue to evaluate transportation impacts from land use proposals at a neighborhood and City-wide level.
- C3.2.5 Study potential transit station mixed use development.

## Policy

- C3.3 Optimize city traffic signal system performance.

### *Action Statements*

- C3.3.1 Maintain the signal system and respond quickly to signal breakdowns.
- C3.3.2 Monitor traffic signal control performance.
- C3.3.3 Interconnect groups of traffic signals where practicable.
- C3.3.4 Make appropriate hardware and software improvements to traffic signals.
- C3.3.5 Make the traffic signal system responsive to all users, including bicyclists and pedestrians.
- C3.3.6 Install and remove signals when warranted and establish an implementation schedule.

## Policy

- C3.4 Maintain roadways and traffic control devices in good operating condition.

### *Action Statements*

- C3.4.1 Inventory and monitor roadway conditions and implement a regular program of pavement maintenance.
- C3.4.2 Install permanent and painted pavement markings.
- C3.4.3 Implement programs for repair of roadbeds, barriers, and lighting.
- C3.4.4 Respond quickly to sign damages and losses.
- C3.4.5 Develop and implement a program for long term transportation infrastructure replacement.

- C3.4.6 Manage on-street parking to assure safe, efficient traffic flow.
- C3.4.7 Conduct periodic analyses of roadway facilities and collision data in order to assure traffic safety.

## Policy

- C3.5 Support a variety of transportation modes.

### *Action Statements*

- C3.5.1 Promote alternate modes of travel to the automobile.
- C3.5.2 Require sidewalk installation in subdivisions of land and in new, reconstructed or expanded development.
- C3.5.3 Support land uses that increase the likelihood of travel mode split.
- C3.5.4 Maximize the provision of bicycle and pedestrian facilities.
- C3.5.5 Implement the City of Sunnyvale Bicycle Plan.
- C3.5.6 Support an efficient and effective paratransit service and transportation facilities for people with special transportation needs.
- C3.5.7 Ensure safe and efficient pedestrian and bicycle connections to neighborhood transit stops.
- C3.5.8 Work to improve bus service within the City, including linkages to rail.



## Policy

- C3.6 Minimize expansion of the current roadway system, while maximizing opportunities for alternative transportation systems and related programs.

### *Action Statements*

- C3.6.1 Develop clear, safe, and convenient linkages between all modes of travel; including, access to transit stations and stops, and connections between work, home, and commercial sites.
- C3.6.2 Promote public and private transportation demand management.

## Policy

- C3.7 Pursue local, state and federal transportation funding sources to finance City transportation capital improvement projects consistent with City priorities.

### *Action Statements*

- C3.7.1 Develop alternatives and recommendations for funding mechanisms to finance the planned transportation system.
- C3.7.2 Develop a funding mechanism where new and existing land uses equitably participate in transportation system improvements.

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## Strong Economy

**GOAL C4** SUSTAIN A STRONG LOCAL ECONOMY THAT CONTRIBUTES FISCAL SUPPORT FOR DESIRED CITY SERVICES AND PROVIDES A MIX OF JOBS AND COMMERCIAL OPPORTUNITIES.

### Policy

C4.1 Maintain a diversity of commercial enterprises and industrial uses to sustain and bolster the local economy.

#### *Action Statements*

C4.1.1 Permit a variety of commercial and industrial uses, including:

- ◆ *Neighborhood Shopping*
- ◆ *General Business*
- ◆ *Central Business*
- ◆ *Office*
- ◆ *Industrial/Research and Development*

C4.1.2 Encourage businesses that provide a range of job opportunities.

C4.1.3 Promote commercial uses that respond to the current and future retail service needs of the community.

C4.1.4 Create a strong, identifiable central business district that provides regional and Citywide shopping opportunities.

C4.1.5 Study the feasibility of requiring residential developments to incorporate telecommuting infrastructure.

## Policy

- C4.2 Balance land use and transportation system carrying capacity necessary to support a vital and robust local economy.

### *Action Statements*

- C4.2.1 Permit industrial FARs up to 35% (and allow warehouse FARs up to 50%), and permit higher FARs in the Futures intensification areas.

- C4.2.2 Study criteria to allow industrial FARs up to 45% by Use Permit in 35% zones, considering at a minimum:

- ◆ the effect of the project on the regional or City-wide roadway system (e.g. strategies for reducing travel demand, proximity to transit centers, peak hour traffic generation)
- ◆ minimum development size
- ◆ redevelopment and/or lot consolidation
- ◆ that the project is intended primarily for a single user or has common/shared management
- ◆ mitigation of housing impacts
- ◆ the development will result in an overall positive community benefit

- C4.2.3 Develop incentive programs to reduce parking demand, support alternative transportation, and reduce peak period traffic.

## **Policies**

- C4.3 Consider the needs of business as well as residents when making land use and transportation decisions.
- C4.4 Encourage sustainable industries that emphasize resource efficiency, environmental responsibility, and the prevention of pollution and waste.



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# THE NEIGHBORHOODS

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**GOAL N1** PRESERVE AND ENHANCE THE QUALITY CHARACTER OF SUNNYVALE’S INDUSTRIAL, COMMERCIAL, AND RESIDENTIAL NEIGHBORHOODS BY PROMOTING LAND USE PATTERNS AND RELATED TRANSPORTATION OPPORTUNITIES THAT ARE SUPPORTIVE OF THE NEIGHBORHOOD CONCEPT.

**Policy**

N1.1 Protect the integrity of the City’s neighborhoods; whether residential, industrial or commercial.

*Action Statements*

- N1.1.1 Limit the intrusion of incompatible uses and inappropriate development into city neighborhoods.
- N1.1.2 Foster the establishment of neighborhood associations throughout Sunnyvale to facilitate community building.
- N1.1.3 Use density to transition between land use, and to buffer between sensitive uses and less compatible uses.
- N1.1.4 Anticipate and avoid whenever practical the incompatibility that can arise between dissimilar uses.
- N1.1.5 Establish and monitor standards for community appearance and property maintenance.

## Policy

- N1.2      Require new development to be compatible with the neighborhood, adjacent land uses, and the transportation system.

### *Action Statements*

- N1.2.1    Integrate new development and redevelopment into existing neighborhoods.
- N1.2.2    Utilize adopted City design guidelines to achieve compatible architecture and scale for renovation and new development in Sunnyvale's neighborhoods.
- N1.2.3    Develop specific area plans to guide change in neighborhoods that need special attention.

## Policy

- N1.3      Support a full spectrum of conveniently located commercial, public, and quasi-public uses that add to the positive image of the City.

### *Action Statements*

- N1.3.1    Review development proposals for compatibility within neighborhoods.
- N1.3.2    Study the adequacy/deficiency of bicycle and pedestrian access and circulation within neighborhoods.
- N1.3.3    Design streets, pedestrian paths, and bicycle paths to link neighborhoods with services.

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## Residential

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### Policy

- N1.4 Preserve and enhance the high quality character of residential neighborhoods.

#### *Action Statements*

- N1.4.1 Require infill development to complement the character of the residential neighborhood.
- N1.4.2 Site higher density residential development in areas to provide transitions between dissimilar neighborhoods and where impacts on adjacent land uses and the transportation system are minimal.
- N1.4.3 Encourage and support home businesses that accommodate changing technologies and lifestyles, while remaining secondary to the nature of the residential neighborhood.
- N1.4.4 Promote small-scale, well-designed, pedestrian-friendly spaces within neighborhoods to establish safe and attractive gathering areas.
- N1.4.5 Require amenities with new development that serve the needs of residents.

### Policy

- N1.5 Support a roadway system that protects internal residential areas from City-wide and regional traffic.

#### *Action Statements*

- N1.5.1 Have internal residential neighborhood streets adequately serve traffic that is oriented to that neighborhood.
- N1.5.2 Utilize the City's residential neighborhood "Traffic Calming" techniques to address specific neighborhood traffic concerns.

- N1.5.3 Discourage non-neighborhood traffic from using residential neighborhood streets by accommodating traffic demand on city-wide and regional streets.
- N1.5.4 Coordinate with adjacent communities to reduce and minimize commute traffic through Sunnyvale's residential neighborhoods.

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## Industrial/Research and Development

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### Policies

- N1.6 Safeguard industry's ability to operate effectively, by limiting the establishment of incompatible uses in industrial areas.
- N1.7 Support the location of convenient retail and commercial services (e.g., restaurants and hotels) in industrial areas to support businesses, their customers and their employees.
- N1.8 Cluster high intensity industrial uses in areas with easy access to transportation corridors.

### *Action Statements*

- N1.8.1 Require high quality site, landscaping, and building design for higher intensity industrial development.

### Policy

- N1.9 Allow industrial, residential, commercial, and office uses in the Industrial to Residential (ITR) Futures sites (Sites 4a, 4b, 6a, 6b, 7, 8, and 10).



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## Commercial/Office

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### Policy

- N1.10 Provide appropriate site access to commercial and office uses while preserving available road capacity.

#### *Action Statements*

- N1.10.1 Locate commercial uses where traffic can be accommodated, especially during peak periods (e.g., lunch time and commute times).
- N1.10.2 Encourage commercial enterprises and offices to provide support facilities for bicycles and pedestrians.

### Policy

- N1.11 Recognize El Camino Real as a primary retail corridor with a mix of uses.

#### *Action Statements*

- N1.11.1 Use the Precise Plan for El Camino Real to protect legitimate business interests, while providing sufficient buffer and protection for adjacent and nearby residential uses.
- N1.11.2 Minimize linear “strip development” in favor of commercial development patterns that reduce single-purpose vehicle trips.

## Policy

- N1.12 Permit more intense commercial and office development in the downtown, given its central location and accessibility to transit.

### *Action Statements*

- N1.12.1 Use the Downtown Specific Plan to facilitate the redevelopment of downtown.

## Policy

- N1.13 Promote an attractive and functional commercial environment.

### *Action Statements*

- N1.13.1 Discourage commercial uses and designs that result in a boxy appearance.
- N1.13.2 Support convenient neighborhood commercial services that reduce automobile dependency and contribute positively to neighborhood character.
- N1.13.3 Provide opportunities for and encourage neighborhood-serving commercial services in each residential neighborhood.
- N1.13.4 Encourage the maintenance and revitalization of shopping centers.
- N1.13.5 Provide pedestrian and bicycling opportunities to neighborhood commercial services.

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## Public and Quasi-Public

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### Policy

- N1.14 Support the provision of a full spectrum of public and quasi-public services (e.g., parks, day care, group living, recreation centers, religious institutions) that are appropriately located in residential, commercial, and industrial neighborhoods and ensure that they have beneficial effects on the surrounding area.

#### *Action Statements*

- N1.14.1 Encourage carpooling to public and quasi-public services to minimize adverse traffic and parking impacts on neighborhoods.
- N1.14.2 Ensure the provision of bicycle support facilities at all major public use locations.
- N1.14.3 Encourage multiple uses of some facilities (e.g. religious institutions, schools, social organizations, day care) within the capacity of the land and the roadway system.
- N1.14.4 Encourage employers to provide on-site facilities such as usable open space, health club facilities, and child care where appropriate.
- N1.14.5 Maintain and promote convenient community centers and services that enhance neighborhood cohesiveness and provide social and recreational opportunities.
- N1.14.6 Promote co-locating government (federal, state, county, city) activities to improve access to the community-at-large.

# Appendices







# APPENDIX A - RELATIONSHIP OF GENERAL PLAN LAND USE CATEGORIES WITH ZONING CATEGORIES

Figure A.1: General Plan and Zoning Categories

General Plan Category	Zoning Category
<b>Residential</b>	
Low (0-7 DU/AC)	Low Density Residential (R-0 and R-1)
Low Medium (7-14 D.U./AC)	Low-Medium Residential (R-1.5 and R-2) Low-Medium Density Residential/Planned Development (R-1.7/PD)
Medium (14-27 D.U./AC)	Medium Density Residential (R-3)
High (27-45 D.U./AC)	High Density Residential (R-4)
Very High (45-65 D.U./AC)	High Density Residential/Office (R-5) Downtown Specific Plan Blocks 3, 4, 5, and 17 101/Lawrence Site Specific Plan
Mobile Home Park	Residential Mobile Home District (R-MH)
<b>Commercial</b>	
General Business	Highway Business (C-2) Service Commercial (C-4)
Central Business	Downtown Specific Plan
Neighborhood Shopping	Neighborhood Business (C-1)
Office	Administrative-Professional Office (O) High Density Residential/Office (R-5)
<b>Industry</b>	
Industry	Industrial Service (M-S) General Industrial (M-3)
<b>Industrial to Residential</b>	
Low Medium	Industrial to Residential (ITR/R-0, R-1, R1.5, R-1.7/PD, R-2/PD)
Medium	Industrial to Residential (ITR/R-3/PD)
<b>Parks, Schools, Solid Waste Transfer Station(SWTS), Water Pollution Control Plant (WPCP)</b>	Public Facility (P-F)
<b>Moffett Federal Airfield</b>	Unincorporated Public Facility

Note: D.U./AC = Dwelling Units per Acre, not including density bonuses, which may be available under certain conditions (Refer to SMC 19.88).

Source: City of Sunnyvale, Planning Division, 1995.

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## RESIDENTIAL

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The Residential Land Use Category includes five sub-categories, which primarily address the density, or number of dwelling units per acre, that may be allowed. The types of dwelling units allowed under each sub-category are designated by the zoning districts that implement the sub-categories.

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### Low Density Residential

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The low density residential sub-category allows 0-7 dwelling units per acre. It is used exclusively for single family detached homes and is implemented by the R-0 and R-1 Zoning Districts. These two zoning districts are distinguished only by differences in their required lot sizes and setbacks, with the R-1 zoning district having a larger required lot area. More than 25% of Sunnyvale's land area is zoned R-0 or R-1. Almost all of this land has been developed. One large parcel of land zoned for R-0 development remained undeveloped in 1995, due to unresolved soil contamination problems.

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### Low-Medium Residential

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The low-medium residential sub-category allows 7-14 dwelling units per acre. Two zoning districts under this sub-category are used for single family detached homes -- the R-1.5 and R-1.7 PD Zoning Districts. These districts feature the small lot/small home developments. A third zoning district under this sub-category, the R-2 Zoning District, has been used for townhomes, duplexes, condominiums, garden apartments and, in a few cases, single family homes. Approximately 8% of the land in Sunnyvale has been designated for Low-Medium Density Residential land use.

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### Medium Density Residential

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The medium density residential sub-category is implemented by the R-3 Medium Density Zoning District and allows up to 24 dwelling units per acre. It has been used for condominiums, townhomes, and apartments, and constitutes over 6% of Sunnyvale's land use.

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### High Density Residential

The high density residential sub-category allows up to 45 dwelling units per acre, in some cases combined with office uses. The R-4 Zoning District allowing up to 36 units per acre and used primarily for apartments, has been applied to approximately 4% of Sunnyvale's land area. The R-5 Zoning District, which allows up to 45 units per acre, was designed primarily for Single Room Occupancy (SRO) developments. Only two parcels had been zoned R-5 PD prior to base year 1995. One of these had not been developed. The other had latter been rezoned as a part of the Downtown Specific Plan rezoning process. It became part of an area of the downtown in which both offices and residences were allowed uses.

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### Very High Density Residential

Very High density residential accommodates up to sixty-five dwelling units per net acre.

This density includes a potential density bonus for specific projects. Housing types will be attached multi-unit dwellings, such as condominiums or apartments. Developments at this density are likely to have incidental retail. Sites with this designation are also likely to have Site Specific Plans.

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### Mobile Home Parks

The Mobile Home Park sub-category was created to discourage the conversion of several functioning mobile home parks to other uses, since mobile home parks have traditionally provided low-to-moderate income housing for Sunnyvale residents. The zoning district that implements this sub-category is the R-MH, Residential-Mobile Home Zoning District. It allows up to 12 dwelling units per acre. Approximately 4.5% of Sunnyvale land area is devoted to mobile home parks.



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## COMMERCIAL

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The General Plan includes four sub-categories under the category "Commercial." The sub-categories address both the kinds of uses and the intensity of use that may be permitted or considered in the locations to which they are applied. The sub-categories are:

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### Central Business

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The Central Business designation is used for downtown Sunnyvale, including the Town Center Mall, Town and Country Village, and historic Murphy Avenue. This area is intended to provide shopping, services, and entertainment that are regional in scope, attracting both Sunnyvale residents and residents from surrounding communities. The Zoning District is DSP, Downtown Specific Plan. Within the DSP zoning district, there are 24 sub-districts, each with its own regulations with regard to use, density, development standards, and design.

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### General Business

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This sub-category permits commercial uses that need exposure to high volumes of traffic or access to transit corridors. Most of the land in Sunnyvale that is designated for General Business is located along both sides of El Camino Real. Restaurants, motels, entertainment, auto dealerships, auto repair, and auto sales are typical examples of uses along the El Camino Real corridor. The Precise Plan for El Camino Real guides development along this corridor. The corresponding zoning is C-2, Highway Business District, and C-2 PD.

Some portions of Evelyn Avenue that are used as a location for service providers (such as repair shops, independent craftsmen, contractors, and specialized materials suppliers) are also included as part of the General Business area. While these types of services are not dependent on high volumes of passing traffic, they are regional in scope, since their specialized nature often draws clients from surrounding communities, as well as from Sunnyvale. The corresponding zoning is C-4, Service Commercial.

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## Neighborhood Shopping

The Neighborhood Shopping sub-category is designed to encourage the location of commercial uses at major intersections in residential areas. Grocery stores, pharmacies, restaurants, laundries and personal services are examples of neighborhood shopping uses. In addition to local commercial uses, some other uses, including residential uses, may be considered through a use permit process within the neighborhood shopping sub-category. The corresponding zoning district is C-1, Neighborhood Business District.

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## Office

The Office land use designation permits administrative, professional and research uses that may provide a customer service or be more corporate in nature. Office uses may also be a part of a combining district in which residential buildings can be used for both residential and office uses. There are a limited number of areas in Sunnyvale where the zoning allows such a mix. These areas are primarily within or adjacent to the downtown district. Offices connected with research activities are not allowed to use or store hazardous or noxious chemicals as part of the use. The corresponding Zoning District is O, Administrative-Professional Office.

Office uses are dispersed throughout the City, since they are either permitted or can be considered through a permit process in most non-residential zoning districts. Because office uses generally have a less intense impact on adjacent land uses a commercial uses, they often provide a buffer between residential and commercial uses.

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## INDUSTRIAL

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Industrial uses are concentrated in the area of the City that is north of Evelyn Avenue or the Southern Pacific Railroad. Land used for industrial purposes occupies approximately 2,277 acres, or 17.9% of Sunnyvale's land area. The industrial land use category is implemented by two zoning districts -- the M-S, Industrial and Service District, and the M-3, General Industrial District. Office support areas, research and development, product assembly, and warehousing are considered "light" industrial uses and are usually found in the M-S Zoning Districts. These uses are typical for businesses such as advanced electronics, computers, communication manufacturing, and biotech research. Development occurs on medium to small lots or as part of a campus-style complex with landscaping as a significant feature.

"Heavy" industrial uses such as milling, storage, and processing of bulk raw materials and refining are usually found in the M-3 zoning districts. Heavy industrial uses often have large lots, substantial lot coverage, and include the use of heavy equipment and areas of outdoor storage and testing. Lockheed-Martin Missiles and Space Corporation is probably the most well known of these heavy industrial properties. The main Lockheed Plant 1 site contains 555 acres.

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# APPENDIX B - SPECIAL LAND USE PLANS

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In addition to the General Plan and zoning regulations, there have been several plans adopted that outline specific uses, opportunities, and development standards for targeted areas of the City. Figure B.1, page B-6 of this appendix, indicates the areas with specialized land use plans in Sunnyvale.

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## DOWNTOWN SPECIFIC PLAN

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This plan for the central business area of Sunnyvale was adopted in July 1993. The Downtown Specific Plan provides a vision and specific implementation measures for the future growth and development of the downtown.

The Downtown Specific Plan provides guidelines and standards for development of the downtown area (about 150 acres of the 250 acre downtown) over the next 20 years. The focus is to provide regional shopping and service opportunities. The plan combines elements of the Sunnyvale historic downtown, policies established in the Community Design Sub-element (adopted December 1990), and policy direction from September, 1990, City Council land use decisions.

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### The Two General Goals of the Downtown Specific Plan

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#### Goals

- G.Gen-1 To establish the downtown as the cultural, retail, financial, and entertainment center of the community, complemented by employment, housing, and transit opportunities.
- G.Gen-2 To develop the land uses adopted by the City Council in November 1990 in an attractive and cohesive physical form that clearly identifies Sunnyvale's downtown.

The corresponding Zoning District is Downtown Specific Plan (DSP), which has specific criteria for each block in the downtown.



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## THE FUTURES STUDY

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The Futures Study (July, 1993) primarily targeted older industrial sites. The purpose of the study was to examine whether planned redevelopment of these sites could achieve a reduction of traffic congestion, improve the ratio of housing units to jobs, improve the City's economic base, and increase the opportunities for public transit use. A list of the Futures Study Transportation Mitigation is located in Appendix E. The following two types of land use changes were adopted as a result of the Futures Study: Industrial to Residential and Intensification.

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### Industrial to Residential

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Eight industrial areas were rezoned with an Industrial to Residential (ITR) combining district. The purpose of the ITR Combining District is to allow industrial, office, commercial, and residential uses to exist within the same zoning district, and to allow industrial, office, or commercial sites identified in the study to convert gradually to residential use.

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### Intensification

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Four sites were identified as appropriate for intensified development of industrial, office, or commercial uses by allowing increased FARs. These sites were designated for industrial/commercial intensification to help offset some of the potential job loss that would occur when the ITR sites convert from industrial to residential use, and to provide a type of development opportunity not currently available in the City.

In July, 1993, the City Council certified an Environmental Impact Report for the Futures Study and adopted the staff recommendation including selecting sites 4a, 4b, 5, 6a, 6b, 7, 8, and 10 for change of Land Use Designations from Industrial and Commercial to Residential designations, adopted a Zoning Code Amendment Overlay District of Industrial to Residential (ITR) to allow the existing industrial uses to remain or to convert to residential uses.

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## PRECISE PLAN FOR EL CAMINO REAL

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The Precise Plan for El Camino Real was adopted in October, 1993. As a major commercial corridor through Sunnyvale, El Camino Real provides the visual image of the City experienced by both residents and those who pass through Sunnyvale. Therefore, the quality of architecture and site design, the appropriateness of certain land uses, and the economic vitality of the street are of significant interest to the City. A study of El Camino Real was undertaken to determine how best to enhance these elements.

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### Purposes of the El Camino Real Precise Plan

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- ◆ Advise interested parties about the primary uses and other types of allowed uses on El Camino Real.
- ◆ Identify locations and development standards for primary and other allowed uses.
- ◆ Provide incentives for developing the primary uses along El Camino Real.
- ◆ Describe a vision for El Camino Real.

Staff identified several existing physical impediments to private development and redevelopment and subsequently identified ten opportunity areas. The opportunity areas are groups of parcels that are well suited for private redevelopment or are important to shaping the vision for El Camino Real. Additional discussion and details about the ten opportunity areas are found in the Precise Plan for El Camino Real. The current zoning designation of El Camino Real is Highway Business District (C-2).

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## **SOUTHERN PACIFIC CORRIDOR SITE SPECIFIC PLAN**

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The Southern Pacific Corridor Specific Plan selects appropriate land uses for nine designated sites along the Southern Pacific Railroad line through Sunnyvale, which are consistent with the City's land use policies and objectives. An objective of the Plan is to maximize residential uses where possible.

During 1994, two planning areas in the Southern Pacific Corridor Site Specific Plan were adopted. Site 2 is located at the southwest quadrant of California Avenue and Mathilda Avenue. The site is in an Industrial Service/Planned Development (M-S/PD) Zoning District controlled by a site specific plan. The City desires that an office type research and development use will be developed on the site at a maximum 35% FAR, unless otherwise approved by the Planning Commission and City Council. A special development permit for a gross floor area of approximately 550,000 square feet in nine buildings has been approved for the site.

The second site specific plan is for Sites 4 and 5 located at the northeast corner of Sunnyvale and Evelyn Avenues. The Council adopted the revised plan that specifies a slightly lower residential density (up to 42 dwelling units per acre) than the Downtown Specific Plan (Blocks 3 and 4) with compatible architectural design controls. The Council action noted preferred commercial uses and the use of the Citywide Design Guidelines for non-residential development. The site was rezoned from C-4 to C-4/PD (Planned Development).

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## LOCKHEED SITE MASTER USE PERMIT

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Lockheed Missiles and Space Company, Inc., has proposed additional development of their Plant 1 site, an existing 555 acre parcel already developed and located at 1111 Lockheed Way. An environmental impact report (EIR) and a Site Master Use Permit were prepared and approved.

The development ultimately could consist of an additional 750,000 square feet of buildings and accessory structures or a total of 4,350 p.m. peak hour vehicle trips generated from the site, whichever is greater. In addition to building development, there will be significant changes to the internal circulation system of the site, additional landscaping, a transit center, public artwork, a route for the Bay Trail, new entryways, and possibly a secured perimeter. Design Guidelines for the site have been approved. An approved Development Agreement between Lockheed and the City proposes that the development will be completed over the next 15 years.



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## 101/LAWRENCE SITE SPECIFIC PLAN

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The 101/Lawrence Site Specific Plan was initiated by the Sunnyvale City Council and prepared by City staff and consultants. The 17.8 acre site is located at the southeast quadrant of Lawrence Expressway and the U.S. Highway 101 interchange. The site is part of a larger area that was developed as an industrial park in the late 1970s. The Sunnyvale City Council adopted the 101/Lawrence Site Specific Plan in June, 1989 (Ordinance No. 2286-89).

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### Objectives of the 101/Lawrence Site Specific Plan

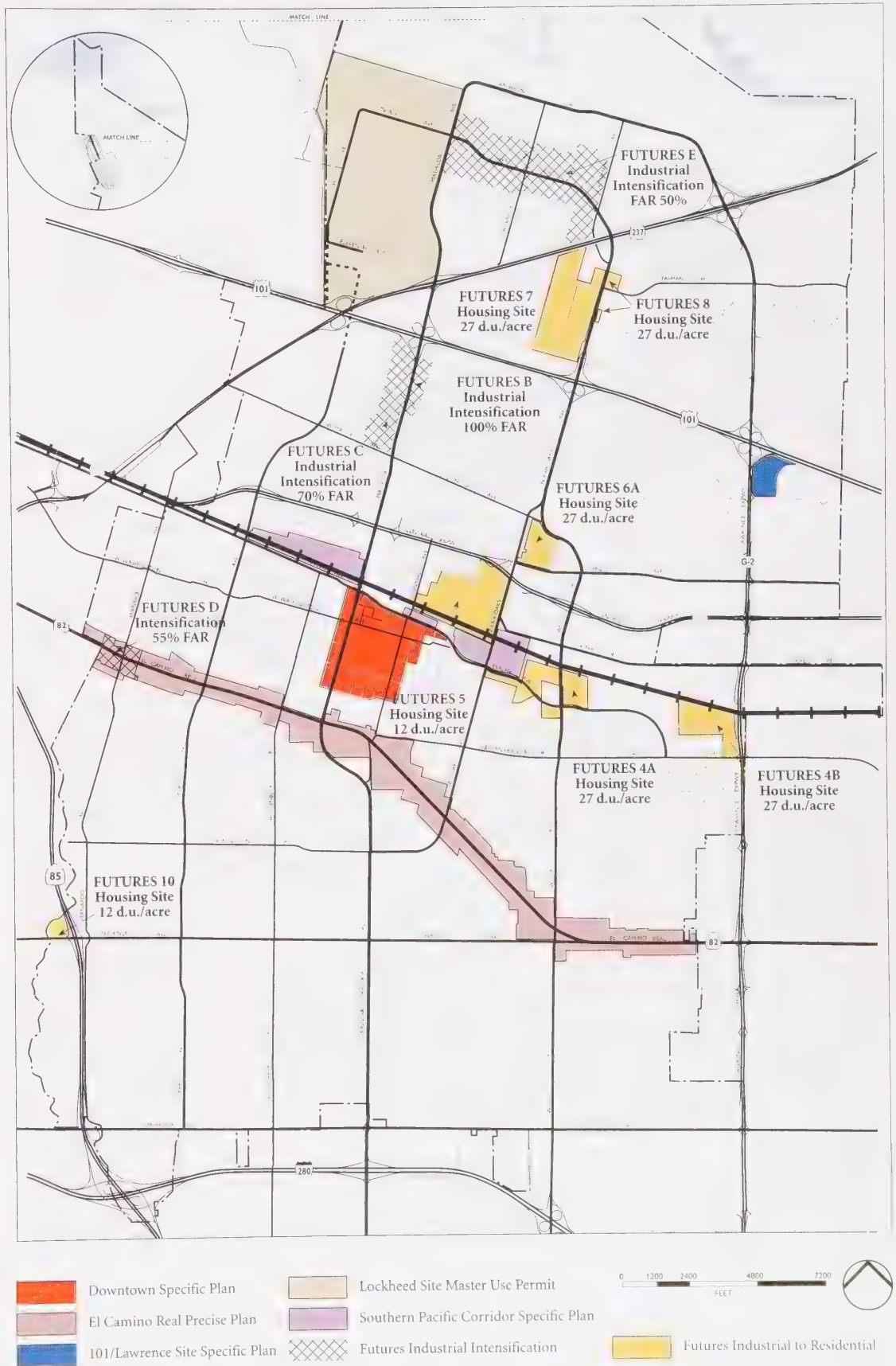
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- ◆ Create a significant landmark quality project that expresses the City's image at the gateway.
- ◆ Create a unique environment or a sense of place at this key location.
- ◆ Create a high density residential project in order to increase the City's potential housing stock. The housing type shall provide for a variety of potential residents in terms of number of bedrooms and affordability.
- ◆ Create an urban village that will be self-supporting with a strong mix of residential uses with incidental retail and amenities, including open space and public art.

A City objective is to create a landmark quality project that expresses Sunnyvale's image. The Plan provides considerable detail regarding the types and intensity of potential uses, site development standards (including urban design elements), and public facilities. The Plan implements the goals of increasing the housing potential and range of densities and types of housing in the City. It also locates high intensity use along a multi-modal transit corridor. Any development plans for the site considered for approval by the City must be consistent with the adopted Site Specific Plan.

Site and architectural plans were approved in 1996 to allow for 709 apartment units within three and four story buildings and a five-story focal building. The proposal includes 3,500 square feet of commercial/retail use. Construction should be completed in 1997.

Figure B.1: Areas with Specialized Plans Map





# APPENDIX C - 1995 PM PEAK INTERSECTION LEVELS OF SERVICE

Figure C.1: 1995 PM Peak Intersection LOS

Intersection		1994*	95/96**	1997
Route 237 @	Maude Avenue WB @ Mathilda Avenue	D	D	
Arques Avenue @	Fair Oaks Avenue Wolfe Road Commercial Street Santa Trinita Avenue Lawrence Expressway Oakmead Parkway	D	C <sup>9</sup> C <sup>9</sup> B <sup>9</sup> C <sup>9</sup> E C	a C <sup>13</sup> B <sup>13</sup> B <sup>13</sup> D <sup>13</sup>
Mary Avenue @	Maude Avenue Corte Madera California Avenue Central Expressway El Camino Real (SR 82) Fremont Avenue	B <sup>5</sup> D D	C <sup>6</sup> B <sup>6</sup> D <sup>6</sup> D C <sup>7</sup>	D <sup>14</sup> B <sup>14</sup> D <sup>14</sup> D <sup>14</sup>
Mathilda Avenue @	Java Drive Moffett Park Drive Route 237 WB Ramps Route 237 EB Ramps Ross Avenue Almanor Avenue Maude Avenue Washington Avenue Indio Way California Avenue El Camino Real (SR 82)	C    C <sup>4</sup> C C <sup>5</sup> C C <sup>5</sup> D	B D <sup>12</sup> C <sup>12</sup> B <sup>12</sup> B <sup>12</sup>  D	C <sup>14</sup> D <sup>14</sup> D <sup>15</sup>
Fair Oaks Avenue/ Java Drive @	Crossman Drive Tasman Drive Duane Avenue Arques Avenue Old San Francisco Road El Camino Real (SR 82)	E	B <sup>16</sup> B <sup>11</sup> C <sup>8</sup> C <sup>9</sup> E	C <sup>13</sup> C <sup>13</sup> D <sup>15</sup> E <sup>15</sup>
Lawrence Expressway @	Tasman Drive Lakehaven Dr/Sandia Ave. Duane/Oakmead Parkway Arques Avenue Kifer Road Reed Avenue/Monroe St. Homestead Road	E E <sup>1</sup> C <sup>1</sup> D E E	E D <sup>10</sup> E D <sup>9</sup> E	E <sup>19</sup> E <sup>13</sup> D <sup>13</sup> F <sup>13</sup> D <sup>20</sup>



Intersection		1994*	95/96**	1997
Homestead Road @	Quail/Tantau	C <sup>2</sup>		C <sup>20</sup>
	Wolfe Road	C <sup>2</sup>		D <sup>20</sup>
	Blaney Avenue			B <sup>17</sup>
	Hollenbeck		D <sup>12</sup>	
Fremont Avenue @	SR 85 NB		B <sup>18</sup>	
	SR 85 SB		B <sup>18</sup>	
	Bernardo Avenue		B <sup>18</sup>	
	Mary Avenue		C <sup>7</sup>	
	Hollenbeck Avenue		C <sup>7</sup>	
	Sunnyvale-Saratoga Road	D	D <sup>7</sup>	
	Wolfe Road		D <sup>12</sup>	
	Belleville Way		B <sup>18</sup>	
El Camino Real @	Bernardo Avenue		D <sup>12</sup>	
	Mary Avenue	D	D	
	Hollenbeck/Pastoria		C <sup>12</sup>	
	Mathilda Avenue	D		D <sup>15</sup>
	Sunnyvale Avenue / Sunnyvale-Saratoga Road		D <sup>12</sup>	D <sup>15</sup>
	Remington Drive / Fair Oaks Avenue	E	E	E <sup>15</sup>
	Wolfe Road	E	E	E <sup>15</sup>
Sunnyvale-Saratoga Road @	Fremont Avenue	D	D	
	Remington Drive	D	D	D <sup>15</sup>
	El Camino Real			D <sup>15</sup>
Sunnyvale Avenue @	California Avenue	B <sup>5</sup>		
Tasman Drive @	Reamwood		B <sup>19</sup>	
	Adobe Wells		A <sup>19</sup>	
	Lawrence Expressway		E <sup>19</sup>	
	Vienna Drive		B <sup>19</sup>	
	Fair Oaks Avenue		C <sup>19</sup>	
Wolfe Road @	Homestead Road	C <sup>2</sup>		D <sup>20</sup>
	Fremont Avenue	D <sup>2</sup>	D <sup>12</sup>	
	El Camino Real (SR 82)	E	E	
	Old San Francisco Road/Reed Avenue		D <sup>12</sup>	
	Kifer Road		D <sup>12</sup>	
	EB Central Expressway		B <sup>9</sup>	C <sup>13</sup>
	WB Central Expressway		C <sup>9</sup>	C <sup>13</sup>
	Arques Avenue		C <sup>9</sup>	C <sup>13</sup>
	Stewart			B <sup>13</sup>

\* Unless otherwise noted, 1994 CMP Monitoring.

\*\* Unless otherwise noted, 1995 CMP Monitoring.

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## Notes

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- 1 1993 Traffic Impact Analysis, Mercado Santa Clara/Mission College Office Development FEIR
- 2 1994 Kaiser Permanente Medical Center Replacement Project PFEIR
- 3 City of Sunnyvale Traffic Engineering Division
- 4 Jack in the Box Traffic Study, February 1995
- 5 Applied Signal Technology Traffic Analysis Report, 1994
- 6 Crossroads Technology Park Traffic Study Update, 1996
- 7 Walgreens Traffic Study, July, 1995
- 8 Navair Manor Traffic Study, January, 1996
- 9 Barton/Aschman data, September, 1995
- 10 The Mark Traffic Study Update, January, 1996
- 11 Rajappan & Meyer Fair Oaks Bridge Detour analysis, 2/96
- 12 96 MultiTrans counts
- 13 Fry's Electronics Traffic Study, 2/97
- 14 Crossroads Technology Center Phase II TIA, 3/97
- 15 In N Out Burger TIA, 3/97
- 16 Tasman Corridor Project Lane Reduction Study
- 17 New World Child Care Center Traffic Study, 6/96
- 18 ISK Office Building TIA, 9/96
- 19 Tasman Drive Lane Reduction Study, 4/96
- 20 Hewlett Packard Site 45 TIA, 2/97



# APPENDIX D - CAPITAL IMPROVEMENT PROJECTS

**Figure D.1: Ten Year Resource Allocation Plan for Transportation Capital Projects**

Location	Project	Budgeted Cost
Homestead Road, Lawrence Expressway to Quail Avenue	Install median	\$ 458,000
Arterial streets, various locations	Install Bus Turnouts	\$ 931,310
San Bernardino Way to Mathilda Avenue	Pedestrian path	\$ 57,120
Maude Avenue @ Macara Avenue	Road widening, left turn pockets	\$ 536,863
Sunnyvale-Saratoga Road, Homestead Road to Mathilda Avenue	Upgrade traffic signal interconnect system	\$ 204,000
El Camino Real, Fair Oaks Avenue to Cezanne Avenue	Install left turn pockets	\$ 249,772
Various locations	Install sidewalk ramps	\$ 562,127
Fair Oaks Avenue, El Camino Real to Highway 101	Upgrade traffic signal interconnect system	\$ 396,473
Old San Francisco Road @ Gail Avenue	New traffic signal	\$ 170,010
Bernardo Avenue @ Knickerbocker Avenue	New traffic signal	\$ 144,192
Bernardo Avenue @ El Camino Real	Traffic signal upgrade	\$ 252,808
Various locations	Various bicycle and pedestrian improvements	\$ 720,000
Fair Oaks Avenue @ Iris Avenue	New traffic signal	\$ 181,803
Pastoria Avenue @ Almanor Avenue	New traffic signal	\$ 157,563
Wolfe Road @ Marion Avenue	New traffic signal	\$ 171,367
Caribbean Avenue @ Crossman Avenue	New traffic signal	\$ 166,376
Various locations	Geometric improvements	\$ 569,709
Lockheed Way @ Moffett Park Drive	New traffic signal	\$ 144,192
Mathilda Avenue, Lockheed Way to Moffett Park Drive	Install sidewalks	\$ 150,000
Lawrence Expressway @ Wildwood Avenue	New traffic signal	\$ 662,719
Wolfe Road @ El Camino Real	Road widening	\$ 2,202,562
Pastoria Avenue @ Olive Avenue	New traffic signal	\$ 144,192



**Figure D.2: Sunnyvale Capital Improvement Projects Funded By Others**

Location	Project	Responsible Agency
Tasman Drive, Fair Oaks Avenue, Java Drive, Mathilda Avenue, Moffett Park Drive	Light rail line	Santa Clara Valley Transportation Authority
Lawrence Expressway @ Highway 237	HOV lane	Caltrans
Lawrence Expressway @ Highway 101	Reconstruct interchange	Caltrans
Highway 237 @ Maude Avenue	Construct interchange	Caltrans
Highway 101, Highway 237	Traffic operations system	Caltrans
Jagels Road @ Manila Drive	Realign roadways, install traffic signals	Santa Clara Valley Transportation Authority, Lockheed

# APPENDIX E - TRANSPORTATION MITIGATIONS

**Figure E.1: General Plan Build-out Roadway Capacity Mitigations**

Location	Improvement	Identified in the Following Studies
Lawrence Expwy. @ Homestead Rd.	Urban interchange	<ul style="list-style-type: none"> <li>• Futures Study</li> <li>• Lockheed Master Use Permit EIR</li> </ul>
Lawrence Expwy. @ Reed Ave./Monroe St.	Urban interchange	<ul style="list-style-type: none"> <li>• Futures Study</li> <li>• Lockheed Master Use Permit EIR</li> </ul>
Lawrence Expwy. @ Tasman Dr.	Urban interchange Rail grade separation	<ul style="list-style-type: none"> <li>• Futures Study</li> <li>• Lockheed Master Use Permit EIR</li> </ul>
Lawrence Expwy. @ Arques Ave.	Urban interchange	<ul style="list-style-type: none"> <li>• Futures Study</li> <li>• Lockheed Master Use Permit EIR</li> </ul>
Lawrence Expwy. @ Lakehaven/ Sandia	Urban interchange	<ul style="list-style-type: none"> <li>• Lockheed Master Use Permit EIR</li> </ul>
Central Expwy. @ Mary Ave.	Urban interchange	<ul style="list-style-type: none"> <li>• North-South Transportation Corridor Study Phase 2</li> </ul>
Mary Ave. north of Almanor Ave.	Road extension to H St. Overpasses @ 101 and 237	<ul style="list-style-type: none"> <li>• North-South Transportation Corridor Study Phase 2</li> </ul>

*Notes:*

*North South Transportation Corridor Study Phase 2 - 1983*

*Futures Study - 1993*

*Lockheed Master Use Permit EIR- 1994*

**Figure E.2: General Plan Build-out Intersection Capacity Mitigations**

<b>Location</b>	<b>Improvement</b>	<b>Identified in the Following Studies</b>
Mathilda Ave. @ Washington Ave.	Widen 2 lanes WB, 1 lane EB	• Downtown Development Program EIR
Mathilda Ave. @ Iowa Ave.	Widen 1 lane each direction	• Downtown Development Program EIR
Mathilda Ave. @ El Camino Real	Widen 1 lane SB	• Downtown Development Program EIR
Taaffe St., Frances Ave., Murphy St.	Road closure to through traffic	• Downtown Development Program EIR
El Camino Real @ Fair Oaks Ave.	Widen 1 lane each direction	• Futures Study
Wolfe Rd. @ El Camino Real/ Fremont Ave.	Widen 1 lane each direction	• Futures Study
Wolfe Rd. @ Kifer Rd.	Add right turn lane	• Futures Study
Sunnyvale-Saratoga Rd. @ Remington Ave.	Widen 1 lane SB	• Futures Study
Sunnyvale-Saratoga Rd. @ Homestead Rd.	Widen 1 lane each direction	• Futures Study
Fair Oaks Ave. @ Crossman Ave.	Widen 1 lane EB	• Futures Study

*Notes:*

*Downtown Development Program EIR - 1990*

*Futures Study - 1993*

**Figure E.3: Mitigation Cost Estimates**

Location	Improvement	Estimated Cost <sup>1</sup>
Expressway Improvements		
Lawrence Expressway @ Homestead Road	Urban interchange	\$ 20 million <sup>2</sup>
Lawrence Expressway @ Reed/Monroe	Urban interchange	\$ 20 million
Lawrence Expressway @ Tasman Drive	Urban interchange/rail grade separation	\$ 25 million <sup>2</sup>
Lawrence Expressway @ Arques	Urban interchange	\$ 20 million
Lawrence Expressway @ Lakehaven/Sandia	Urban interchange	\$ 20 million <sup>3</sup>
Central Expressway @ Mary Avenue	Urban interchange	\$ 20 million <sup>2</sup>
New Roads		
Mary Avenue north of Almanor Avenue	Road extension to H Street, overpasses @ Highways 101 and 237	\$ 25-30 million
Intersection Improvements		
Mathilda Avenue @ Washington Avenue	Add left and right turn lanes WB, right turn lane EB	\$ 990,000
Mathilda Avenue @ Iowa Avenue	Add left turn lanes WB and EB	\$ 1 million
Mathilda Avenue @ El Camino Real	Add through lane southbound	\$ 825,000
El Camino Real @ Fair Oaks Avenue	Add left turn lanes WB and EB	\$ 2 million
Wolfe Road @ El Camino Real/Fremont Avenue	Widen one lane NB and SB; turn restrictions	\$ 2.1 million
Wolfe Road @ Kifer Road	Add left turn lane WB	\$ 900,000
Sunnyvale-Saratoga @ Remington Ave	Add right turn lane southbound	\$ 900,000
Sunnyvale-Saratoga @ Homestead Rd.	Add right turn lane, WB, SB	\$ 1 million <sup>2</sup>
Mary Ave @ El Camino Real	Add SB right turn lane	\$ 300,000
Fair Oaks Avenue @ Crossman Avenue	Add eastbound left turn lane	\$ 990,000
Taaffe Street, Frances Avenue, Murphy Street	Road closure to through traffic	\$ 180,000
Total Assumed City Cost <sup>4</sup>		\$100 million

1. Constant 1996 dollars

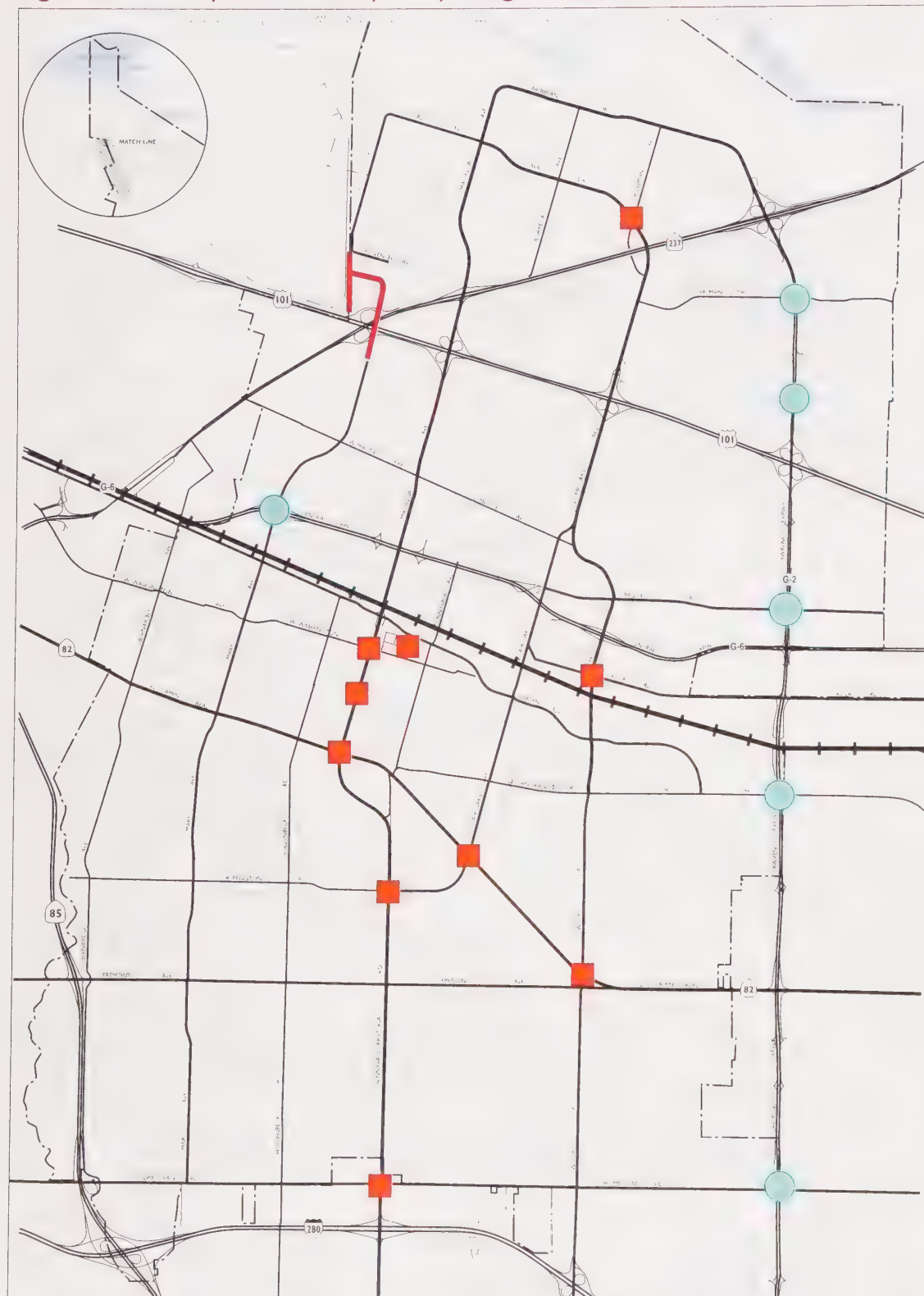
2. Assumes moderate to high participation by outside funding sources

3. Project questionable due to physical and environmental constraints

4. Assumes low or no participation by outside funding sources for projects with only City wide benefit



Figure E.4: Transportation Capacity Mitigation for Sunnyvale Projects Map



-  Expressway Improvement
-  Intersection Improvement
-  New Road



# APPENDIX F - RESOLUTION

## CITY COUNCIL RESOLUTION NO. 181-97

### RESOLUTION NO. 181-97

#### A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SUNNYVALE AMENDING THE GENERAL PLAN BY CREATING A NEW LAND USE AND TRANSPORTATION ELEMENT

WHEREAS, the Department of Community Development has proposed an amendment to the 1972 General Plan of the City of Sunnyvale, as amended, by combining the formerly separate Transportation Element and the Land Use Sub-Element into a new Land Use and Transportation Element, which proposed Element is set forth in Report to Council No. 97-470 dated November 11, 1997; and

WHEREAS, a Negative Declaration has been prepared in compliance with the California Environmental Quality Act of 1970, as amended, and City Council Resolution No. 193-86; and

WHEREAS, the Planning Commission held a noticed public hearing on the proposed amendments on October 27, 1997, after which the Planning Commission recommended that the City Council adopt the new Element; and

WHEREAS, the City Council held a noticed public hearing to consider adoption of the amendment on November 11, 1997, at which the new Element was approved;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SUNNYVALE THAT:

1. The City Council finds and determines that the proposed amendment conforms with the requirements provided for in the Sunnyvale Municipal Code, that it is a suitable and logical change of the General Plan for the development of the City of Sunnyvale, and that it is in the public interest.

2. The new Land Use and Transportation Element as adopted, a copy of which is on file in the Office of the City Clerk of the City of Sunnyvale, is hereby incorporated into the 1972 General Plan of the City of Sunnyvale.

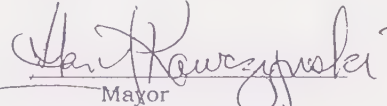
3. The Mayor and City Clerk are directed to endorse the amendment to the 1972 General Plan of the City of Sunnyvale and the General Plan Map reflecting the newly combined Land Use and Transportation Element and to show that the same has been adopted by the City Council.

4. The City Clerk is directed to file a certified copy of the amendment to the 1972 General Plan of the City of Sunnyvale with the Board of Supervisors and the Planning Commission of the County of Santa Clara and the planning agency of each city within the County of Santa Clara. The City Clerk is directed further to file a certified copy of the amendment with the legislative body of each city, the land of which may be included in said plan.

Adopted by the City Council at a regular meeting held on November 11, 1997, by the following vote:

AYES: WALKER, ROBERTS, PARKER, VORREITER, VALERIO  
NOES: NOLL, KAWCZYNSKI  
ABSENT: NONE

APPROVED:

  
Mayor  
Date: 11-14-97

ATTEST:  
City Clerk

By   
Deputy City Clerk

Date:  
(SEAL)



Residential

Low Density 0-7 d.u./acre

Low-Medium Density 7-14 d.u./acre

Medium Density 14-27 d.u./acre

High Density 27-45 d.u./acre

Very High Density 45-65 d.u./acre

Mobile Home Park

Commercial

General Business

Central Business

Neighborhood Shopping

Office

Commercial Intensification

Public/Quasi-public

Parks

Schools/Religious Institutions

Civic Center

Baylands

Moffett Federal Airfield

Environmental Services

Industrial

Industry

Industrial Intensification

Industrial to Residential (Low Medium Density)

Industrial to Residential (Medium Density)

Specialized Plan Boundaries

Planning Area Boundary

101

Freeway

Expressway

Class 1 Arterial

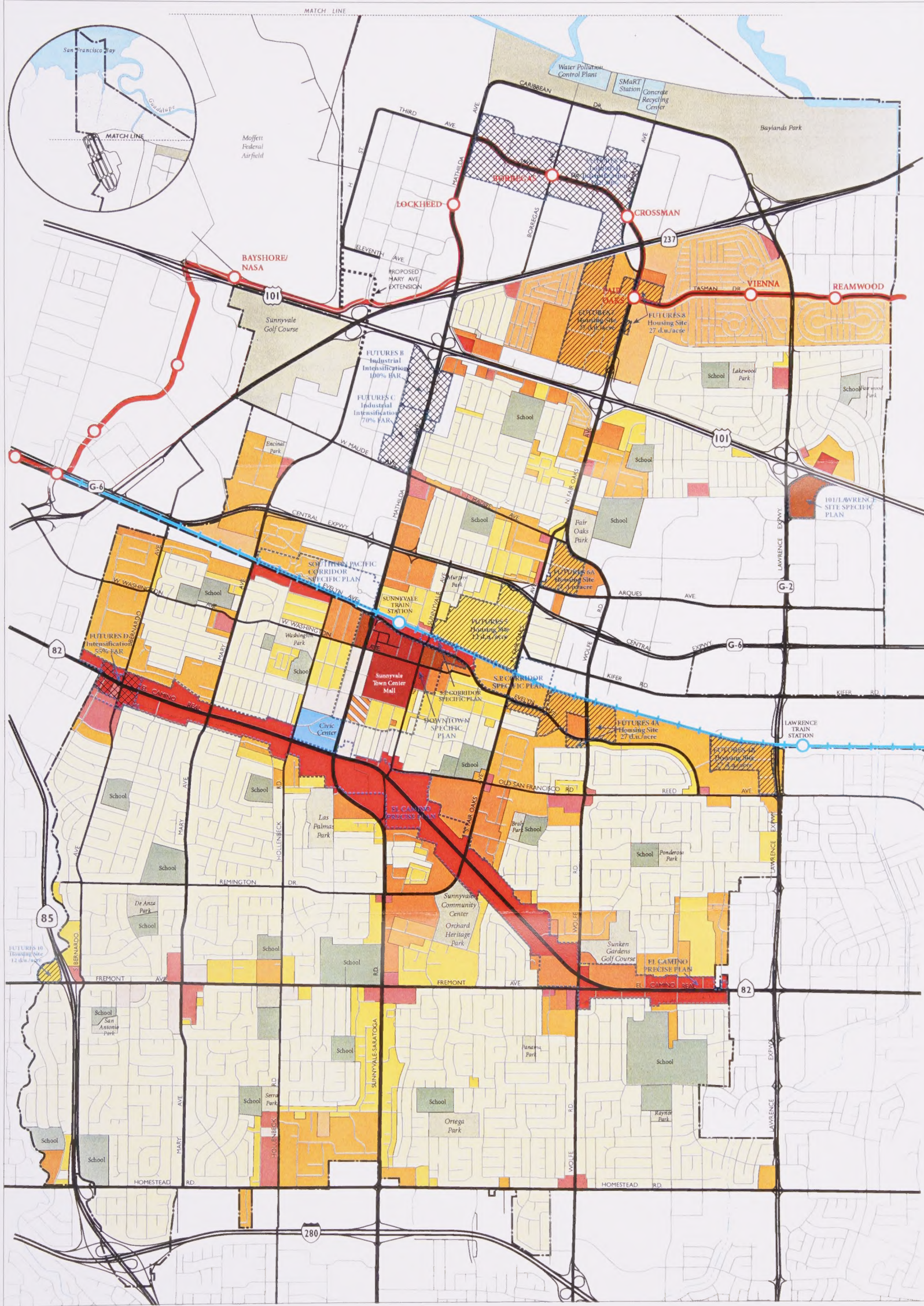
Class 2 Arterial

Collector

Local

Railroad/Stations

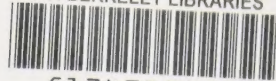
Light Rail/Stations







U.C. BERKELEY LIBRARIES



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Community Development and Public Works Departments

456 West Olive Avenue  
P.O. Box 3707  
Sunnyvale, CA 94088-3707

Community Development: (408) 730-7444 email: [planning@ci.sunnyvale.ca.us](mailto:planning@ci.sunnyvale.ca.us)  
Public Works: (408) 730-7415 email: [pubworks@ci.sunnyvale.ca.us](mailto:pubworks@ci.sunnyvale.ca.us)